MAY, MDCCCLXII.

THE ZOOLOGIST:

A

POPULAR MONTHLY MAGAZINE

OF

NATURAL HISTORY,

AND

JOURNAL FOR RECORDING FACTS AND ANECDOTES

RELATING TO

QUADRUPEDS, BIRDS, REPTILES, FISHES, MOLLUSKS,
INSECTS, WORMS, ZOOPHYTES, &c.

THEIR HABITS, FOOD, RETREATS, OCCASIONAL APPEARANCE,
MIGRATIONS, NESTS AND YOUNG.

No. CCXLII.

LONDON:
JOHN VAN VOORST, PATERNOSTER ROW.

Price ONE SHILLING.

The Apes at Gibraltar.

By the Rev. ALFRED CHARLES SMITH, M.A.

DURING a recent tour through Spain I chanced to spend three days, or parts of days, in a French steamer, and as we crossed over from the African coast at Tangier, and neared Gibraltar, among other topics of conversation, the well-known monkeys of the Rock were naturally and very prominently made the subjects of inquiry, when, to our surprise, and not a little to our disgust, M. le Capitaine treated the whole story as a myth, and declared that no monkeys had ever really existed there, but that it was a thorough English hoax, a *badinage* very amusing to the "subs of Gib," but not to be credited for a moment by any man of sense or science. I own to a feeling of very considerable disappointment when these words fell from the lips of the captain, and, as it did not occur to me to doubt his accuracy (for I thought that, as his vocation took him to that locality every week, he *must* know the real state of the case), and as I did not then reflect that everything connected with the English at Gibraltar (that marvellous key to the Mediterranean, which is the envy of so many) is an object of jealousy and suspicion to the foreigner, Frenchman no less than Spaniard, and as I had totally forgotten our worthy Editor's account of these apes ('Zoologist' for 1846, p. 1292), wherein he calls attention to the marvellous scepticism of Frenchmen generally, even the *savans* of Paris, as to the existence of apes at Gibraltar, I landed with the weight on my mind that, after all, there were no apes, and never had been any apes, on the rock.

And so, after a thorough English breakfast, in a thorough English inn, which was a pleasant change after the abominations we had endured in the *fondas*, *posadas* and *ventas* of the Peninsula, it was with every thought of the monkeys banished from our minds that we started forth to scale the rock, and view all the wondrous galleries and overwhelming batteries of this most impregnable fortress. And when we had satiated our unmilitary minds with an ample allowance of cannons, mortars and shells, whose respective numbers, strength and size were duly detailed by the smart artilleryman who acted as our cicerone, so different to the untidy, unmilitary sons of Spain, with whom we had of late become familiar, we bethought ourselves (still with minds free from the thought of monkeys, of which our once dearly-cherished visions had been so rudely put to flight) that it would be well to climb on to the flagstaff on the top of the rock, and enjoy the view, thus acting up to the taunt so frequent in the mouth of the unenterprising foreigner, and *meant* to be very severe, though in reality a tribute to the energy, perseverance and pluck of our countrymen, that the travelling Englishman is never satisfied with seeing any place until he has mounted to the highest point. Slowly we sauntered up the path, for we had the whole day before us, and though in the month of November, the heat was very oppressive (in summer it is sometimes terrific, the thermometer of the signal-house on the top of the rock, exposed to the sea-breeze, in July last, having risen to 98° in the shade), and ever and anon we sat down to admire the beautiful scene. There was that wondrous rock, on which we now stood, aptly called "the sentinel watch-tower of the Mediterranean," a veritable crumb of England, so unlike all near it, jutting out southward into the sea below, now smooth as glass, though yesterday lashed into frenzy by the dreaded Levanter, as we slowly and with difficulty ploughed our way across from the coast of Africa; behind us, to the North, stretched the mountains of Spain; from the West rolled the broad waters of the Atlantic; to the East lay the blue Mediterranean.

And now we had gained the flagstaff on the top, and were lazily refreshing ourselves with that which, to be thoroughly appreciated, should be unexpectedly met with in a southern climate, after a hot walk on a sultry day, *viz.* a genuine bottle of "Bass," imported from England, when all our languor was put to flight and our energy restored by the casual observation of the signal-man, that "the monkeys were on the move," and had been seen several times that morning, and might probably be seen again. First, to overwhelm the man with questions, and then to rush out to the parapet at the flagstaff, and peer amongst the grass and bushes which fringe the steep face of the rock, in the attempt to behold the monkeys with our own eyes, was a moment's work; but though we gazed long and anxiously, and for a considerable time narrowly watched the rocks and bushes all around, the fates were not propitious to us on this occasion, and we could not, as we longed to do, carry back to the captain of the steamer, when we re-embarked in the evening, the conclusive assurance that we had ourselves had ocular testimony of the veritable existence of "los monos" on the rock of Gibraltar. We did not, however, leave the spot till we had obtained all the information we could glean upon the subject from the signal-man at the flagstaff, every particular of which was amply corroborated by many who had repeatedly seen the apes.

It appears that they are of the species commonly called the Barbary Ape or Magot (*Macacus Inuus*), which though universally so called, is not, I believe, in reality a true ape, for it has something more than the rudiments of a tail, every vestige of which the true Simians entirely want. From time immemorial these monkeys have had a footing on the rock, and must have had their origin on the opposite coast of Morocco, for they do not exist in a wild state in any other part of Europe; but at what period they came over the sea is not so easy to determine, neither is it very apparent *how* they came, unless we accept the somewhat romantic Moorish tradition, that they pass backwards and forwards to the coast of Morocco by a subterranean passage under the Straits!! but be that as it may, there they undeniably are, though sadly reduced in number, for a little band of four only has for some years constituted their whole force. They are seldom seen, unless when the wind changes, but being delicate, and very susceptible of any sudden rise or fall of temperature, the shifting of the wind from E. to W., or *vice versâ*, is sure to put them on the move, when they may generally be seen changing their quarters to the leeward side of the rock. They are very active, and prefer the higher and steeper precipices for their abode, where they live in undisturbed possession of the many caves and hollows in the loose rocks which compose the summit. That they have no difficulty in finding a sufficiency of food on the rock is manifest from their apparently good condition. There are many plants growing luxuriously among the loose stones, whose leaves and fruits they eat, more especially the sweet roots of the *palmito*, or dwarf palm, which is very abundant there, but they vary this diet with coleopterous and other insect food, which is always abundant in southern latitudes; and they are also said, I know not with what truth, to descend at times and rob the gardens of the town below, when darkness favours such marauding forays, and ripe fruit presents temptation enough to overcome their natural love of retirement. They are generally supposed to be extremely shy, and to scamper away on the least alarm; but my informant denied this, and, in proof of his assertion, pointed out some rocks where he had seen them sitting that morning and staring at him, by no means disconcerted at the British uniform or the gaze of the sergeant, while they remained for a considerable time within twenty-five or thirty yards below the parapet of the flagstaff on which he was leaning, and only moved away leisurely at last. At the same time the fact of their being so seldom seen, unless during their migrations to the opposite side of the rock, seems to indicate a very retiring, unfamiliar disposition, while the fact of their not being hunted, but, on the contrary, strictly preserved from the slightest molestation, would in time give a certain degree of boldness to the most timorous animals; so that, though they have learned confidence from protection, they are undoubtedly by nature extremely timid. From what date such protection has been afforded them my informant could not say, though he had understood they had always been strictly preserved during British occupation of the rock; but from the year 1855 the quartermaster has not only taken them under his special care, but has also instituted a systematic registering of their appearance and numbers, and, with this object in view, has provided the signal master with a book, which he showed me, wherein might be seen very carefully entered the details of the dates of their appearance, and their numbers during the last six years. From a careful examination of this very interesting register I found that they were seen, on an average, once in ten days, sometimes rather oftener; that they moved in summer as much as in winter, always anxious to avoid the wind, from whichever quarter it blew; and that in 1856 they numbered ten, but have gradually dwindled down to four, the sad remnant which now exists, and which bids fair to die out altogether, as it is supposed that the only individuals left all belong to one sex.

Such is the present condition of the apes at Gibraltar. That they are almost an "institution," and certainly the greatest lions of the place, is notorious; but there is a certain prospect that, unless replenished in numbers, they will in the course of a very few years become as extinct on the rock as the great bustard is on Salisbury Plain. But among the many British officers quartered at Gibraltar, keen sportsmen and probably enthusiastic naturalists as many are, is there no one patriotic enough and energetic enough to import a few apes from the opposite coast of Barbary, with which there is weekly communication at least, and whence all the beef which feeds those bold Britons is derived? Can no one be found to purchase, if but half-a-dozen, and turn them loose among their congeners on the rock? [A subscription for an object of such general interest, set on foot among the officers of the five regiments generally in garrison would be certain to be responded to, to the full extent required.] Then we might hope they would once more flourish, and continue for generations to come to pilfer and chatter and grin and grimace, as only monkeys can do. But it does seem to me a subject of sincere regret that for lack of a little timely precaution this interesting order of

Mammalia, the Quadrumana, should cease to be represented in Europe.

ALFRED CHARLES SMITH.

Yatesbury Rectory, Calne,
March 11, 1862.

Economic Uses of Canadian Suckling Animals among the Chipewyan Indians. By B. R. Ross, Esq.*

WHILE collecting and arranging a series of specimens of the industrial arts of the natives of Mackenzie's River District, for the Royal Industrial Museum of Edinburgh, I was struck, not only with their number, but also with their importance to the domestic comfort of these races.

Though doubtless much of the skill of the Chipewyan tribes has been lost since the period of Sir Alexander Mackenzie's visit, by the introduction of European manufactures, enough yet remains to prove interesting as exhibiting the arts and manufactures of a people still in the first stages of social existence and civilization. The manufactures are in themselves rude, and, with the exception of porcupine work, I know of none that would obtain the name of Art, or win in a Museum the meed of more than a passing glance from any one save an ethnologist. To the unreflecting, or to those who for mere pleasure visit these "repositories of science," they must indeed be *caviare*, but to the philosophic mind they would speak volumes, as showing the human intellect, though in its lowest stages, attempting, not unsuccessfully, to break through the surrounding crust of animalism, and struggling to emerge into a sphere of higher intelligence.

In the present sketch I entirely exclude the Eskimos and Loucheux,—though recent researches almost confirm me in the opinion that the latter tribe is a branch of the Chipewyan family,—as it would swell the paper much beyond the limits to which I have restricted myself to pass their handicrafts also in review.

The Chipewyan tribes, including the Montaignais, Yellowknives, Beavers, Dog-ribs, Slaves, Sickannies, Nehaunies and Hare Indians, draw their resources from the animal, vegetable and mineral kingdoms; but I must at present restrict myself to the first of these great sections, hoping, at some future period, to have the pleasure of noticing the others.

---

* From the 'Canadian Naturalist' for December, 1861.

In the manufactures of the Indians no articles hold a more important or more conspicuous position than those drawn from animals; but this must naturally be expected in a people who subsist almost solely on the products of the chase. The climate of these regions, moreover, in a manner prohibits agriculture, even were the natives willing to turn their attention to such pursuits, which they are not.

I shall pass briefly in review all the species of animals from which they derive any material, noting with each the various purposes to which it is applied.

Foxes. The various species of foxes found in this district are the red, cross, silver, white and blue. The latter is not, as some writers affirm, the young of the white, nor is it that animal in its summer garb, though it is closely allied to it. The only article furnished by these animals is a fine sinew thread for bead-work, and is taken from the tail.

Black Bear (*Ursus americanus*), Grizzly Bear (*U. horribilis*) and Barren-ground Bear (*U. arctos*). The black bear is found throughout the wooded portions of the districts, but is replaced on the barren grounds by a species bearing a strong resemblance to the U. arctos of Europe. The grizzly bear dwells among the Rocky Mountains. From the black, and indeed from all, the natives derive food; they also cut the summer hides into cords. The prepared fat is extensively used as a pomatum, but I cannot coincide with those who state bear's grease to be a good hair renovator; on the contrary, it will in all likelihood, if used pure, cause the hairs to split and fall out. Grizzly and barren-ground bears' claws are much prized for necklaces and coronets by the Indians.

Marmots. There are three, if not four, species of this animal in the Mackenzie's River District, *viz.*, Arctomys pruinosus (inhabiting the northern Rocky Mountains and Nehaunay Hills), A. Kennicottii (dwelling in the same localities, with a more northern range, and extending eastward to the Anderson River), and A. monax (coming as far north, though rare, as the Liard's River). Out of all these the mountain tribes make robes, and the flesh is counted sweet and fat. As I do not think that the marmot, which I have named A. Kennicottii (after my friend the enterprising naturalist Mr. Robert Kennicott), has been yet described, I shall here insert a brief note concerning it. It is in size as large as a small musk rat, and in colour a silvery gray, interspersed with orange hairs on the back, but changing on the flanks into a decided yellow, palest on the belly; the tail is short. It has cheek pouches, and is decidedly smaller than A. monax. In habits, so far as is known, it assimilates closely to the other marmots. It is a social animal, and digs its den on the mountain's side, or in the banks of rivers. When these animals are outside, a sentinel is placed at a short distance from their habitations, where it sits on its hams, and will, when surprised, lower itself, uttering a peculiar cry or whistle; that, when twice repeated, causes all the party to seek for shelter in their holes. They lay up stores of winter provender. Very far north there is a variety which is perfectly black, instead of hoary and yellow. The robes made from the skins of this species smell very badly.

Beaver (*Castor canadensis*). The beaver exists some distance within the arctic circle, and the darkest coloured pelts that I have seen are from Fort Good Hope. The Slave and Dog-rib tribes make capotes and robes out of the skin, and the castoreum is extensively used in the manufacture of a medicine or perfume for enticing the lynx to enter into the snaring cabins. The flesh and tail are among the most prized dainties of Indian epicures.

Porcupines. These animals are scattered all over the district, principally in the vicinity of the Rocky Mountain ranges, but I do not think that they are often found around the shores of Great Slave Lake. The flesh is considered a great treat, and the quills furnish the materials for embroidering the only really tasteful articles to be found among the natives of these regions. The Slave Indians, dwelling along the Mackenzie and Liard's Rivers, are reckoned the most skilful fabricators of this manufacture. The things made out of them consist of belts, bands, garters, bracelets; and they are also used for ornamenting bark-work, dresses and shoes. In manufacturing belts, &c., a framework of sinew-thread is first laid, through which the quilts are interwoven in squares, something in the manner of Berlin wool work. The articles when finished are very pretty, and some of the women are sufficiently adepts to follow any angular pattern which may be set them. The dyes used are procured principally from the vegetable kingdom, though the natives residing in the vicinity of the Forts often apply to the wives of our servants to tint the quills with imported dye-stuffs.

Rabbit (*Lepus americanus*). This animal, so essential to the welfare of the Chipewyan nation, is spread all over the district, except upon the barren grounds. It is subject to periodical failures, which occur with great regularity, and which cause no small amount of privation and suffering to the Indians when they happen. When the animals are numerous the Tinné tribes of the Mackenzie valley subsist altogether on them, and the skins furnish almost entirely their winter clothing—robes, shirts, capotes, mittens and socks being made, which afford a sufficient protection against the most severe cold, though they do not form lasting garments, as the hair falls out very quickly.

Moose (*Alces americanus*). Is found in greater or lesser numbers throughout the wooded portions of the district. Its food consists of the coarse grass of the swamps and the shoots of various kinds of willows. It produces from one to two at a birth. In size it is rather larger than a horse, and a buck in its grease will weigh as high as 800 tbs. without the offal. When in good condition the flesh is sweet and tender, and is highly esteemed as an article of food, but should the animal be poor, or have been subjected to violent exertion previously to death, the meat is scarcely eatable. The nose or moufle is considered by some the greatest delicacy of the North-west, contesting the palm with bear's paw, beaver tail, reindeer tongue, buffalo boss and sheep ribs. The Indians sometimes snare the moose, and in the spring, when the action of the sun has formed a thick crust upon the snow, they drive them into drifts and spear them in numbers. It is not a gregarious animal, and to hunt it requires more skill than is necessary in the pursuit of either reindeer or buffalo. In the winter, for some time before the hunter comes on his chase, he removes his snow shoes, and despite the thermometer being many degrees below zero, sometimes takes off his leggins; he then makes his approach cautiously, cutting such twigs of willows as may be in his way with his teeth, and avoiding, when possible, dry brush and fallen timber. As the slightest unusual sound is sufficient to frighten this animal, the chosen period for hunting it is during the continuance of a heavy gale of wind. During the rutting season, which happens in the fall, the males are rather dangerous to follow, and instances have occurred of native hunters having been severely injured and even killed by them. They fight rather with their fore feet than with their horns. The uses to which the various parts of the moose are put are many. The hide supplies parchment, leather, lines and cords; the sinews yield thread and glue; the horns serve for handles to knives and awls, as well as to make spoons of; the shank bones are employed as tools to dress leather with; and with a particular portion of the hair, when dyed, the Indian women embroider garments. To make leather and parchment the hide is first divested of hair by scraping, and all pieces of raw flesh being cut away, if then washed, stretched and dried, it will become parchment. In converting this into leather a further process of steeping, scraping, rubbing and smearing with brains is gone through, after which it is stretched and dried, and then smoked over a fire of rotten wood, which imparts a lively yellow colour to it. The article is then ready for service. Of parchment, as such, the Chipewyans make little use, but the residents avail themselves of it in place of glass for windows, for constructing the sides of dog-carrioles, and for making glue. The leather is serviceable in a variety of ways, but is principally made up into tents and articles of clothing, and in the fabrication of dog-harnesses and fine cords, wallets, &c. The capotes, gowns, firebags, mittens, moccasins and trousers made of it are often richly ornamented with quills and beads, and when new look very neat and becoming. The best dressers of leather in these parts are the Slave Lake Chipewyans and Liard's River Slaves. The lines and cords are of various sizes, the largest being used for sled lines and pack-cords, the smaller answer for lacing snow shoes and other purposes. In order to make sled lines pliant—a very necessary quality when the temperature is 40° or 50° below the zero of Fahr.—the cord is first soaked in fat-fish liquor; it is then dried in the frost, and afterwards rubbed by hauling it through the eye of an axe; to complete the operation it is well greased, and any hard lumps masticated until they become soft, by which process a line is produced of great strength and pliancy, and which is not liable to crack in the most severe cold. To obtain thread the fibres of the sinews are separated and twisted into the required sizes. The moose furnishes the best quality of this article, which is used by the natives to sew both leather and cloth, to make rabbit-snares and to weave into fishing nets. Sinews can be boiled down into an excellent glue or size. In mounting knives and awls with the horns, lead, copper and iron are used for inlaying, and rather handsome articles are sometimes produced. The making of spoons, tipping of arrows and carving of fish-hooks require little explanation, nor does the stuffing of dog-collars and embroidering with the hair need any particular comment, so I shall conclude this imperfect notice of a very valuable animal, which yields food, shelter and clothing to the savage inhabitants of this remote and dreary portion of the globe.

Reindeer. Two species inhabit this district, the strong-wood reindeer (*Rangifer caribou*) and the barren-ground reindeer (*R. arcticus*), which, though very nearly allied, are certainly distinct one from the other. The strong-wood reindeer inhabit the thickly wooded parts of the district, particularly among and in the vicinity of the mountain ranges, where they are of very large size. Though smaller than the moose these deer are of considerable bulk, and weigh up to 300 tbs.

In most particulars they resemble the barren-ground species, differing from it in the following points:—smaller horns, darker colour, larger size, not being so gregarious and not migrating. Both species are equally infested with the larvæ of a kind of gad-fly, which perforate the skins and cause the animals much pain. These larvæ, or others very similar to them, are also found under the mucous membrane at the root of the tongue and in the nostrils, and I have even found them in the brain. The only hides serviceable for converting into leather are those of animals killed early in the winter, which, when subjected to a process similar to that detailed under the head of Moose, and bleached in the frost instead of being smoked, furnish a most beautiful, even and white leather, which is used for shoe-tops, embroidered with quills and silk. The barren-ground reindeer during the summer and spring months frequent the barren plains lying between the wooded country and the shores of Hudson's Bay and the Arctic Sea. Their migrations, which are performed with wonderful regularity, are as follows. They leave the shelter of the woods in the end of March and beginning of April, and resort to the plains, where they feed on various kinds of lichens and mosses, gradually moving northward until they reach the coast, where they bring forth their young in the beginning of June; in July they begin to retire from the sea-board, and in October rest on the edge of the wood, where they remain during the cold of winter. In the northward movement the females lead, while the southward migration is almost invariably headed by a patriarchal male. The horns of these deer are much varied in shape, scarcely any two animals having them precisely alike. The old males shed theirs towards the end of December, the young males and barren females in April, and the gravid females in May. Their hair falls in July, but begins to loosen in May. The new coat is darkish brown and short, but it gradually lengthens and becomes lighter in colour until it obtains the slate-gray tint of winter. A full-grown buck will weigh about a hundredweight. The flesh when in prime condition is very sweet, but bucks, when in season, have their fat strongly impregnated with the flavour of garlic, which indeed is always present more or less. The summer food of the reindeer is lichens, moss and coarse grass; in the winter it consists of the dried hay of the swamps and the hairy moss adhering to the pine trees. I have seen it stated that these animals in the winter, in order to procure food, shovel away the snow from the ground with their horns, but this theory, however plausible, is entirely negatived by the facts of the case, for from my own knowledge, and all that I can learn, both from whites and natives, these deer use their feet only for this purpose. Indeed when the horns would be necessary the males would have already lost them, and a supplemental addition would be required to the hypothesis of the females clearing a space for the males to graze on, as the gentler sex, at that period, reversing human fashions, wear the horns instead of their lords. The barren-ground reindeer furnishes the principal support of the Yellow-knife, Dog-rib and Hare Indians, and has the same value to them the moose has to the other branches of their nation. Their clothing for winter is made out of fawn-skins, dressed with the hair on, and consists of capotes, gowns, shirts, leggins, mittens, socks and robes, which are warm and when new nice looking. Hides which are so much perforated by the larvæ of the Œstrus as to be unfit for any other purpose are converted into *babiche*, to make which the skin is first divested of hair and all fleshy matter; it is then with a knife cut into the desired thickness, the operation beginning in the centre of the skin. There are two sizes of this article, the larger being used for barring sleds and for the foot-lacing of snow-shoes, the smaller as a species of thread for sewing leather, for the fine netting of snow-shoes, and for lacing fishing and beaver nets.

Buffalo. The strong-wood variety, which comes so far north and east as about twenty miles from the mouth of Little Buffalo River, near Fort Resolution, Great Slave Lake, is found most numerously in the vicinity of the salt plains of Salt River. It is unknown throughout the country inhabited by any of the Slave tribes, and the point mentioned above may be considered as its furthest limits. It is of larger size than the plain variety, of darker colour and more thickly furred. The Chipewyans eat its flesh and make robes and parchment from the hides. The horns are made into powder-flasks, and are used for mounting knives and awls; the tail mounted on a wooden shank, ornamented with goose or porcupine quills, is used as a fly-flapper. From its scarcity this animal does not contribute materially to the tribes under consideration.

Musk Ox (*Ovibos moschatus*). This small but powerful animal is an inhabitant of the Barren-grounds and Arctic Coast, from 61° N. It frequents wild rocky situations, and possesses the agility of the antelope, between which and the buffalo it appears to form a connecting link. During the winter it feeds on lichens and in the summer on grass. From its remote habit it is of little service to the Chipewyan tribes, and though the Yellow-knives, Dog-ribs and Hare Indians sometimes hunt it, yet as it is very fierce, and the flesh is strongly impregnated with the flavour of musk, it is not much looked after. The calf skins make excellent robes and caps, but the adult hides are almost too hairy for any purpose of that sort. The tails are made into fly-flappers similar to those obtained from the same part of the buffalo.

Mountain Goat (*Aplocerus montanus*). Is found throughout all the mountain ranges of this district to within a short distance of the Polar Sea, if, indeed, it does not reach it. It is a larger animal than the domestic goat, which it resembles only in name and in having a beard. It is covered with long and rather brittle white hairs, beneath which a coat of very fine white curly wool lies close to the skin. The flesh, though rank, is fat and tender, and is much relished by the Mountain Indians, who also make robes, clothing and leather from the hide. Curious dog-sleds are manufactured out of the skin covering the shank bones, by sewing numbers of the pieces together with the hair outside, which slides well over the snow.

B. R. Ross.

[It is most cheering to observe the interest awakened among our fellow subjects in Canada on the economic uses of these animals: the present is the second paper on this topic.—*E. N.*]

The Wolf-Days of Ireland.—My father, whose youth was spent in Ireland, and who died twenty-one years ago, at the age of seventy-four, could tell many very interesting anecdotes (related to himself by uncles and aunts on his mother's side) connected with the ravages of wolves in that country, in the days when these animals were very formidable there. Some of these accounts are but indistinctly remembered by me; but it was a source of wonder and amusement in early childhood to hear them told by my dear father on a winter's evening. There are one or two very clearly impressed on my memory; and, as the race is now extinct in the British islands, it may possibly interest the present and coming generations to have them recorded. An ancestor of my father's family led the humble yet pleasant life of a woodcutter, living in a little habitation at some distance from the scene of his labours. He possessed one of those noble and beautiful animals, now also nearly or quite extinct, the Irish wolf-dog,—Turnbull by name,—an almost necessary protection in that day, when a thickly-wooded country afforded abundant shelter for these ferocious masters of the forest, which, even singly, would attack men, and sometimes visit the cottages, and watch their opportunity to carry off young children. Malone (for that I believe was the man's name) went out to his work one day incautiously unprotected by his faithful dog. He worked later than usual that evening, and towards the close of his day's labour, when he had bound up many fagots of fallen wood, a large and savage wolf issued from the thicker part of the forest and made directly towards him, seeing, no doubt, that he was unarmed and alone. Malone immediately pulled one of the thickest stakes from a bundle of wood and prepared to make the best defence in his power, warding off the attacks of the furious brute, and walking backwards towards home, well knowing that to turn his back to the enemy would be immediately fatal. He also bethought himself that his good friend Turnbull might be just within hearing, and had the presence of mind to call out repeatedly, at the top of his voice, "Turnbull! Turnbull!" Now it so happened that his wife at home felt a little anxious; and the more so, seeing that the dog, instead of being with his master, was lying comfortably asleep before the embers on the hearth. She went out, therefore, to try if she could see or hear anything of her husband, and stood, earnestly watching, on the top of a little hill near the house, when the distant call came upon her ear. In haste she descended, guessing well the nature of the impending danger, and taking the dog to the same spot, she made him stand beside her, gently patting him that he might be still and listen. In a few moments the faithful animal heard—as his mistress had done, and now a little nearer—the well-known call, "Turnbull! Turnbull!" No more was needed: the dog instantly darted off at his utmost speed, and was soon lost to the sight of the trembling wife, who gazed after him, rivetted, as it were, to the spot where she stood. It need hardly be said how thankful the poor man was to hear his bounding step, nor how quickly the cruel enemy fled on seeing his antagonist approaching. Turnbull, however, followed up the chase, and it was some time before he returned, bearing abundant evidence, in his wounded and blood-stained appearance, what a conflict had taken place between him and the wolf, and leaving little doubt that he had been the victor. Another case my dear father related, in which a wolf, taking up a little child by its clothes, was carrying it off as fast as such a heavy load would allow him. The child, just old enough to speak, and possibly having been accustomed to be played with, or even thus carried, by one of the large dogs, thought it very nice, and enjoying the ride, exclaimed in the Irish language "I'm a-going!" repeating the words in a singing tone, until rescued from its perilous situation by its parents, who were in time to follow and bring back their darling in safety. One more instance I remember, in which several wolves attacked one of the Malone family, when returning from a journey on horseback, one dark night. He put spurs to his terrified steed, but the wolves were close behind, and actually made several leaps on to the horse's hind quarters, inflicting severe wounds with their fangs. The traveller just reached his own door, however, himself unhurt, though frightened almost out of his senses, exclaiming to his brother at home, "Oh! James, James, let me in—my horse is ate with the wolves!" —*Jonathan Grubb; Sudbury.*

Notes on Birds' Nests.—The following curious instances of materials used by birds in building were noticed by me last year at Ealing.

Pied Wagtail. I took a nest from the top thatch of a haystack. Another pair of these birds took possession of a deserted nest of the robin in an ivied wall: the young were reared.

Blackbird. A nest in a bed of nettles; another composed of dried stalks and leaves of cabbage; another with a considerable quantity of horse-hair in the lining.

Spotted Flycatcher. Fastened to two branches, projecting from the trunk, by a band of coarse cord.

Chaffinch. A nest covered outwardly with curled quill-shavings.

Magpie. Without a dome, though containing four eggs.

Hedge Accentor. A nest built and lined with hay; another composed of sticks about a foot in length, laid crosswise and projecting all round, resembling a *chevaux de frize;* lining red and white cow-hair; in the ivy on a wall.

Blackcap. Lined with the sprigs of a whalebone broom. — *H. Blake-Knox; Bartragh, Dalkey, Dublin, March* 7, 1862.

The Manner in which the Cuckoo deposits its Eggs.—In corroboration of what Mr. Cogan states of the deposition of the eggs of the cuckoo (Zool. 7935), I may mention that a few years ago a young cuckoo was discovered in the nest of a robin in an aperture of an old stone wall; there was only one cuckoo as usual, and no young robins. In about a month my friends where it happened were obliged to enlarge the hole or entrance to the nest, to allow the young cuckoo to escape. This bird was watched for five or six weeks by most of the members of the family, and was most attentively fed by its foster-parents, the robins, until it disappeared; but the inhabitants of the house particularly stated that they were always puzzled to know how the egg of the cuckoo had been introduced, as it was quite impossible that the body of the parent bird could have entered. The nest was about four inches from the entrance.—*H. W. Newman; Hillside, Cheltenham, March* 11, 1862.

Early Arrival of the Wheatear. — Yesterday, March 7th, I noticed a wheatear on the sea-shore. This is the earliest date at which the bird has been known to arrive at Bembridge. Up to the 5th of the month we had cold easterly winds; on the 6th and 7th it blew a gale, with much rain, from the south-west, the temperature rising more than twelve degrees. With this soft, warm wind came the wheatear. — *A. G. More; Vectis Lodge, Bembridge, March* 8, 1862.

Habits of the Crested Titmouse.—On Tuesday last I had the pleasure of observing several crested titmice among some Scotch firs near Craig Lockhart, within about an hour's walk of this city. Their presence was betrayed by their peculiar and incessantly repeated notes; but even after the discovery had been made it was no easy matter to keep the birds in view, owing to their continual restlessness, in which respect, as well as in the amusing variety of their motions, they bore a striking resemblance to the more familiar blue titmouse. They kept pretty near together, and for the first twenty minutes or so after my arrival they appeared to be making but a cursory examination of the trees, constantly flitting from branch to branch, and seemingly obtaining but little in the way of food. At length, without any apparent cause, they all flew off to a small clump of Scotch firs standing alone at a more sheltered part of the hill-side. Whether they had received a signal from one of their number who had been sent out to explore, or whether they preferred the comparative shelter of their new position, it is impossible to say; but at any rate it was evident that they had now found an abundant supply of food, for not only did they confine themselves to one single tree, but they also appeared to be directing their attention almost exclusively to the extremities of the smaller branches, to which they might frequently be seen hanging back downwards, at the same time making vigorous use of their bills. In this manner they were still continuing to employ themselves when I left the spot about half an hour later, after having repeatedly, but in vain, endeavoured to ascertain the nature of their food, by examining such of the small branches as could be obtained. Although I broke these from the same tree, by means of a long stick, the birds were so little alarmed as merely to fly to the opposite side of the tree (which, however, was one of considerable spread), and there remain curiously eyeing me until the interruption ceased. Several hundred yards from this spot I saw two more birds of the same species in a thick hedge. As far as could be ascertained, both of them were females, but so constantly were they in motion that a fair view of them could with difficulty be obtained. One of them suddenly flew out of the hedge, and made several snaps at a few midges which were enjoying a passing gleam of evening sunshine in a sheltered corner close by. I have either heard or read that the note of the crested titmouse is first heard in March; but the early period of its commencement in the present instance can scarcely be wondered at when we consider the unusual mildness of the season.—*Henry L. Saxby; 54, Gilmore Place, Edinburgh, March* 3, 1862.

Unusual Number of the Grosbeak occurring in Cambridgeshire. — In many parts of this county, as also those of the adjacent counties on the eastern side, this species has been unusually numerous this winter, although almost unprecedented in mildness. Cambridgeshire hitherto has not been a locality in which this bird was by any means common. I am aware it is to be met with annually in various parts of England, such for instance as the New Forest, Hampshire, and particularly at Albury Park, Herts: at the latter place I have known as many as four or five to be bagged at one shot. They used to frequent a row of beech and hornbeam trees, the seeds of which it is particularly fond of. Their stay used to be from the beginning of winter till early in May, after which they were never seen. The grosbeak is excessively wary and shy in its habits.—*S. P. Saville; Dover House, Cambridge, March* 11, 1862.

Food of the Wren. — Mr. Brockholes having replied to my remarks upon the food of the wren, I wish to say a few more words on the same subject. I had no other motive in penning those remarks than to correct what I still believe to be an erroneous statement respecting the food of this little songster. Mr. Brockholes admits that he has never actually seen the wren feeding upon snails, and only supposes that it does so from having seen this bird near the broken shells: I consider such evidence of very little value. I have seen the thrush feeding upon snails scores of times, and this morning watched a pair fetching them out from a laurel hedge in our garden, and breaking their shells on a large stone close by. Gilbert White, in his 'History of Selborne,' mentions the fact of thrushes being very useful in gardens, in consequence of their destroying so many snails. As far as I am aware no other British bird feeds upon them; the blackbird may possibly do so sometimes, but I never saw one in the act, and I much doubt if they ever do eat snails in a wild state. I do not think the reference to the raven and blue tit has anything to do with the question: the powerful mandibles of the tits enable them to crack hard seeds, pull flesh to pieces, &c., which the wren, with its slender, feeble beak, could not possibly do; and with regard to its eating snails "peacemeal," I wish to ask Mr. Brockholes if he can bring forward a single instance of a bird exclusively insectivorous, like the wren, feeding in this way? As far as I have observed they never capture an insect too large for them to swallow entire. I am aware that birds which are partly insectivorous and partly frugivorous or granivorous, like the sparrow, &c., swallow their prey "piecemeal," but I cannot remember ever seeing a truly insectivorous bird feed in this manner.—*Henry Doubleday; Epping, March* 5, 1862.

Further Notes on the Common Wren.—Some years since I published the following notes on this species. The discussion in the pages of the 'Zoologist' has induced me to send you a copy of them. "Is it a fact generally known that the common wren, in sharp frosty weather, will resort, in numbers varying from twelve to twenty, to holes in any places affording suitable shelter? I myself, during a stay in Hertfordshire, have taken from one hole no less a number than twenty, and from others twelve and fifteen. The reason I attribute for so many wrens huddling together is to keep themselves warm. I think they are a very sociable species, or so many could not live in peace, taking for granted that they do. The holes from which I took the wrens were in the eaves of a thatched sheep-shed in Albury Park, Herts."—*S. P. Saville.*

Notes on the Great Spotted Woodpecker.—I have to thank Mr. Saxby for his interesting notes on the spotted woodpecker, in answer to my inquiry (Zool. 7847), in which I expressed a wish to learn if this species had been similarly numerous in other localities. Mr. Saxby expresses a wish to ascertain the sexes of these birds. I have much pleasure in informing him that the examples which came under my notice were, on the average, three females to one male. I am sorry I cannot furnish the direction of the wind at the time. It was particularly observable that the captures were in every case on the eastern side of the county (Cambridgeshire).—*Id.*

Cuckoo depositing her Egg.—At a meeting of West Riding Consolidated Naturalists' Society, Mr. Halliday wished to bring before the meeting a subject advocated in the 'Zoologist,' respecting the means employed by the cuckoo in conveying her egg into the nest. He read the paragraph in the 'Zoologist' which appeared to support the statement that the egg was first laid by the cuckoo, then taken up by the bill and swallowed, and thus conveyed to and disgorged into the nest of what were to be its foster-parents. Mr. Pickles, of Queenshead, said that as the lark's foot was so formed that it could take its eggs in its claws and remove them from one nest to another, he thought it a deal more probable that the cuckoo might use its foot in conveying its eggs, in preference to using the bill, which he thought was not calculated at all as a means of conveyance of such delicate material. Mr. Heaton, of Halifax, said that he had taken a young cuckoo from a wagtail's nest in a wall, and had to pull the wall down before he could extract the intruder; and he would like to know by what means the cuckoo had placed her egg in that nest. Several theories were propounded, but no new facts were elicited, when Mr. Ellis said that it appeared none of the members present had ever seen the cuckoo deposit her egg, and, as she was a very shy bird, probably they never would: they must be satisfied for the present with the fact that the same instinct which tells her to place her egg in some other bird's nest for incubation, &c., will also teach her the best means of conveying it there.

Note on Sabine's Snipe.—I have for a long time considered this bird to be only a variety or "lusus" of the common snipe. I have had the opportunity of examining several specimens, among them the one noticed in the 'Zoologist' for 1857 (Zool. 5593), killed in Norfolk; and I think almost any one who will read Mr. Salvin's note carefully will be satisfied that it is no species. Mr. Gatcombe says (Zool. 7939), "All sportsmen who have killed this bird remark that it rises without noise." This is not quite correct. Mr. Thompson says, in his 'Birds of Ireland,' vol. ii. p. 277, of two birds shot, one that rose with some common snipes did not "squeak;" the other rose in company with a common snipe and uttered a similar cry, and but for its colour would have escaped, as the colour led the sportsman at first sight to believe it to be a water rail.—*F. Bond; Kingsbury, Middlesex, March* 12, 1862.

Jack Snipe.—It would appear that the jack snipe assumes the same dark plumage, as the variety of the common snipe which has received the name of Sabine's snipe, for I was sporting near Staines, in January of last year, when we flushed a jack snipe which appeared, on the wing, to be quite black. My companion fired at it, but missed. We could not find it again. It was, however, shot in the same field a few days afterwards, and I am sorry to say consigned to the spit. The person who shot it told me the plumage was suffused with brown, and not black as I supposed when I saw it on the wing.—*Id.*

On the Change of Plumage in the Crossbills and Pine Grosbeak. — Even now it appears that it is not quite clear what is the true mature plumage of these birds, and as little seems to be known with any certainty at what ages the change (in the males) from bright red to dull red and from dull red to yellow-green, takes place, and as I have lately turned my attention to this subject, and have had good opportunities of obtaining the old birds in every state of plumage, a few observations may not be uninteresting. Referring to every British authority that I can find, I am led to suppose that the mature plumage in both species is red, in extreme age tinged with yellow; and every coloured figure that I have seen, both of the old male crossbill and pine grosbeak, favours this supposition. But such is not the case: the red plumage is only an intermediate stage, and the full mature dress in the male of both species is bright yellow-green. This is contrary to the opinion of many naturalists; but I can prove it from many specimens. I am, however, pretty confident that none of us know for certain how long the birds wear this red livery, or at what age they assume the mature yellow-green dress. That the red plumage in both species lasts for more than two years, gradually passing from deep carmine to brickdust-red, I feel pretty confident. We may, therefore, describe the change of plumage in the male bird thus:—First, the nest plumage; dark brown, edged with yellow-green, especially on the head and rump, and this seems gradually to change, even before the first autumnal moult. After the first moult, carmine-red (and in this plumage the bird can breed); this colour gradually becomes, by moult and wearing, dull brickdust-red, and eventually yellow-green. I have been lucky enough to see specimens both of the pine grosbeak and crossbill in the mature yellow plumage; but that they are rare may be inferred from the fact that I never, among all the nests of the crossbill that I have taken, have found more than one belonging to a mature male, although I have occasionally shot the old yellow males in the winter in company with the young red birds. In April, 1860, I took a nest of the parrot crossbill with three eggs, the largest I ever saw and the finest coloured, evidently from a very old bird. The plumage of this male was bright yellow-green all over, most vivid on the rump and head, but without the slightest shade of red; the female of the usual gray-green, tinged on the rump with yellow. I can, however, hardly agree with Nilsson that they assume this mature dress at the third moult, else why should we see so few of these yellow-green males in proportion to the red birds? I have never yet seen more than two examples of the mature green pine grosbeak: one was this last winter, in a cage, where he had been confined ten years; he was a red bird when he was caught in the winter, but in the ensuing autumn he changed to bright yellow-green, and since then has undergone little or no change in his plumage: the other was shot in a wild state in Calmar Land, here, in February, 1855; I have the skin now before me, and it is precisely the same as the specimen I saw in the cage; his plumage very much resembles that of the female, but the head and rump are much brighter, and the breast and belly much yellower. There appears to be a more marked difference between these old yellow males and the green females in the crossbills than in the pine grosbeak. I never yet have had the luck to fall in with the pine grosbeak in breeding dress (and this is the only season when we can come to any safe conclusion). Again, with regard to the pine grosbeak, there is, I think another mystery wants clearing up. I never till this winter had much opportunity of studying this bird in a state of nature. It is true that every winter we have a few in our midland forests, but this winter they have been unusually numerous, and about forty specimens have passed through my hands. In the crossbills I observed that the proportion of red birds of different shades is pretty equal to the green birds (which I suppose are all females, admitting that the young males attain their red plumage at the first moult, for the old yellow male can never by any chance be mistaken for the female in the crossbill); but this is not the case with the pine grosbeaks, for out of all the specimens I have obtained this winter not more than six have been red birds; all the rest have been dull brown-green, more or less shaded on the head, breast and rump with reddish yellow. It is not easy, at this season, to ascertain the males from the females by dissection, but I was lucky enough in one or two instances to do so. Still I can hardly suppose that so near a proportion of these yellow-green birds can be all females; nor do I think, as far as I can judge, that any of them were old males; and from this fact I draw the inference that the pine grosbeak does not attain its red plumage at the first moult, like the crossbills, or else why do we meet with so few red males? It is true that I have had but one winter's experience to judge from, and shall be very pleased if any other practical naturalist will give his opinion. To prove that I am not wrong in what I have written, take for instance the breeding habits of the green sandpiper and the crossbills. In no work on Natural History, either British or foreign, have I ever seen it noticed that this bird lays its eggs in an old deserted nest. Every one, in alluding to its breeding habits, states "that the nest of this species is either in sand or on a bank, or among grass by the side of a stream." Yet here, in a country where this bird is comparatively common (so much so that I generally procure four or six nests every year), I have never by any chance found the eggs otherwise than in an old nest in a fir tree. And, again, in Sweden, which may be called the very hot-bed of the crossbills, no one knew anything about their breeding habits (or if they did they kept it to themselves) till I set them right.— *Mr. Wheelwright, of Sweden, in the 'Field' Newspaper, March* 22, 1862.

Occurrence of the Wild Goose near Penzance. — A specimen of the gray-lag goose was shot a few days since in the marsh between this place and Marazion; and it appears that over a long series of years this is the first occurrence of this species. We have had, especially when heavy frosts from the North and East have driven birds to southern regions, repeated visits of bean, whitefronted and brent geese, and occasionally of bernicles; but I never remember seeing or hearing of any wild geese making their appearance in Cornwall. The character and shape of the beak, being bulkier and more elevated than that of the bean goose, with its uniformity of colour and white nail at the tip, are very striking at first sight; and there appears to be a light blue colour on the lesser wing-coverts and upper tail-coverts which the bean goose has not. The wild goose also has a rim of naked red skin around the outline of the eyes, not apparent in the other species. The bird now under notice agrees precisely with the various figures, excepting that there is a narrow border of white round the base of the bill, not to be confounded with the character of Anser albifrons, but rather giving one an impression of an accidental variety, or of its being a bird of last summer's hatching. —*Edward Hearle Rodd; Penzance, March* 5, 1862.

White Specimens of Redthroated Diver and Lapwing.— A few days since I saw a fine male redthroated diver which was perfectly white, with the exception of three or four feathers of a dark shade on the back; the legs and bill white, the former with a few dark markings on them. I also saw an albino of the lapwing. Mr. Wood, the eminent taxidermist, of Vere Street, London, at whose shop I saw the specimens, stated that the diver was shot off the Essex coast, and the lapwing in Ireland. This last bird is not so perfect an albino as the former, as it has many dark feathers on the wings; the crest, head and body, however, are nearly pure white. —*R. H. T. Gilbert ; March.*

Occurrence of the Little Gull in Kent. — Two little gulls were obtained for me on the Kentish coast last month ; one was a bird of the first year ; the other a very fine adult: they had far advanced towards the summer state of plumage. Four other instances of the occurrence of this gull were recently recorded (Zool. 7939, 7940). To what cause is the simultaneous appearance, in different districts, of these and other comparatively scarce birds to be attributed ? The little auk, the hoopoe, and others, seldom occur in isolated instances ; but when one is recorded, five or six others usually appear, about the same time, in various parts of the country.—*W. Hammond ; St. Alban's Court, near Wingham, Kent, March* 7, 1862.

Puffins in Winter. — I have lately met with no less than eight puffins killed in December, January, February or March, and agreeing in certain peculiarities that I think worthy of notice. In the first place, the fact of their occurrence in winter is remarkable, since it is perfectly familiar to every ornithologist that the puffin arrives on our coast in May, and leaves us in August, after the duties of incubation are over and the young are able to fly. What becomes of these curious birds in winter, I have no means of ascertaining : it is one of those secrets ornithologists have not yet penetrated ; and it is on this account we find them so frequently indulging in graceful platitudes, which convey no reliable information ; such for instance as the following : —" Before the approach of winter these interesting visitors shun the rigours of our boisterous clime, and retire to the balmy shores of the Mediterranean, or find a still more congenial climate farther to the South ;" or sometimes thus :— " As soon as the young puffins are sufficiently strong on the wing to brave the inclemency of boreal skies, they wing their way to the far-distant North, where they congregate in countless myriads, to the astonishment of the intrepid men who venture life and limb in the service of Science." All this is nice writing and agreeable reading, yet regarded from a Natural-History point of view it is scarcely satisfactory. But passing over a branch of the subject on which we are profoundly ignorant, these facts remain : the normal puffin only occurs here in summer, the abnormal puffin only in winter. *Secondly*, The shape of the beak is totally different in the two birds ; in the winter bird it is more slender, more pointed, the upper outline much less convex and quite continuous with the outline of the forehead ; the lower outline is produced into a conspicuous angle or tooth halfway between its apex and base ; of this angle there is no trace in the summer bird. In the summer bird the gape opens beyond the mandibles and almost beneath the eye, terminating in a puckered naked skin of a bright yellow colour. The winter bird is without this extended gape, and totally without the naked skin. In the summer bird the eye is surrounded with a naked skin of bright orange colour ; this orange circle or eyelid is entirely wanting in the winter bird. Some slight differences of colour are to be noticed ; but these are of less importance than those in the structure of the beak, &c., already described ; the cheeks and ear-coverts of the winter bird are smoke-coloured, while those of the summer bird are pure white. It has been suggested that the extraordinary difference in the shape of the beak is attributable to a difference of age ; that the winter specimens are invariably young birds, and it is conjectured they have not been sufficiently advanced to accompany their parents on their southward journey. Thus Temminck, in his ' Manual of Ornithology,' vol. ii. p. 933, observes, " Les jeunes de l'année, ont le bec beaucoup plus petit, lisse sur les côtés, depourvu de sillons, d'un brun jaunâtre ; l'espace entre l'œil et le bec d'un cendré noirâtre ; les joues et la gorge d'un cendré plus foncé que chez les vieux ; le large collier du cou nuancé, par devant, de cendre noirâtre ; les pieds d'un rouge terne." This is certainly the bird to which I desire to invite attention, but M. Temminck does not satisfactorily state how he has ascertained it to be the young of the common puffin, and it is difficult to conceive that a bird having such a beak as that shown in fig. 1 in February or March should acquire such a beak as that shown in fig. 2 before the breeding season in May, when the beaks of all the individuals breeding on our coasts certainly appear similar both in form and colouring. In the newly-hatched young of the snipe tribe the beak is short and dumpy, but acquires its normal proportions before the breeding season. I ought to add that Brunnich, quite as familiar with these birds as Temminck, describes the winter puffin as a distinct species, under the name of Alca deleata (Orn. Boreal. p. 25). The difference in the size and shape of the puffin's beak has not escaped the notice of other naturalists. The late Mr. Stephens, in his continuation of Shaw's 'Zoology,' figures a bird under the name of the northern puffin ; the figure is drawn from a specimen in the British Museum, obtained during Captain Ross's expedition in search of a north-west passage, and labelled Fratercula glacialis by the late lamented Dr. Leach. This bird has a larger beak than the common species, and Temminck, who in his Appendix adopts it from Stephens, thus differentiates the two. "Le puissant bec coloré d'une seule teinte ; la grande rosace a l'angle de la bouche ; des nudités oblongues au dessus et derriere l'orbite, joints a des dimensions plus fortes, servent de moyen pour distinguer cette espèce de la suivante."—(Temminck, iv. 580.) Gould also, in his magnificent work, 'The Birds of Europe,' part 21, figures it as distinct. Mr. Selby, has, however, some admirable observations, which apply equally to the northern puffin of Stephens and to the winter puffin now under consideration, two birds which seem to depart from the normal or summer puffin in different directions. "I have found the beaks of different individuals on our coasts differ in depth and curvature: in one, which was taken in its burrow, the bill measures one inch and a half in depth, in the other scarcely one inch. In length they are nearly equal, by which the mandibles of the larger-billed bird are made to appear much more convex than the other; and in the former the keel of the lower mandible is also very strong and arched; in fact this specimen seems to possess the precise characters and relative proportions of beak of the northern puffin figured by Mr. Stephens." With these quotations and references I must leave the matter in the hands of my friends, but not without expressing the obligation I am under to the editor of the 'Field' and to Mr. Bond for the opportunities so kindly afforded me of examining specimens.—*Edward Newman.*

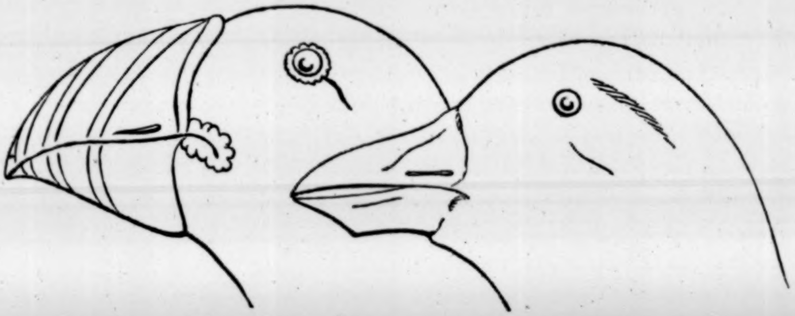

Fig. 2. Fig. 1.

Occcurrence of the Crane at Hartlepool.—Mr. Abbott, a birdstuffer, of Church Street, Hartlepool, has just received for preservation a fine and perfect specimen of the crane. It was seen in an open field near that place and was killed at a distance of eighty yards. This magnificent, ornamental and most docile bird is in all respects adapted for the climate of England, and was formerly so abundant here that Archbishop Neville, as reported in Leland's 'Collectanea,' served up two hundred and four cranes at a single feast. Without asking why an archbishop should have exceeded Heliogabalus in the extent and lavish prodigality of his banquets, we may ask why such a magnificent bird is killed whenever it sets foot on our inhospitable shore. Why should we perpetually seek to verify the satirical remarks of our acerb but truthful poet Rogers, who has said that whenever the sun happens to shine of a morning an Englishman exclaims, "See, here's a fine morning! let us kill something."—*Edward Newman.*

Occurrence of the Egyptian Goose at Alton.—About a month ago, I am not sure of the exact date, as I only heard of the fact yesterday, three Egyptian geese were killed at one shot, on Frensham Pond, about nine miles from here. The one I sent you an account of before was shot at Oakbanger Pond, which is only about four or five miles from Frensham. I know of no one near here who keeps any Egyptian geese, as from four being shot so nearly together one would almost suppose they must have escaped. I have only known of two shot in this neighbourhood before these four, and that was some years ago.—*P. Crowley; Alton, March* 26, 1862.

Occurrence of the Sclavonian Grebe at Halifax.—A female specimen of the Sclavonian grebe was shot on the 17th ult. by Mr. Marchant, at the Victoria Reservoir, Halifax.—*George H. Parke; Stanway Old Hall, Halifax, April* 1, 1862.

Occurrence of the Blackthroated Diver near Scarborough.—A young female bird of this species was found dead, washed ashore on the north beach here, a few mornings since, by a fisherman, having evidently perished from exhaustion. Several little auks and young of the great glaucous gull have been taken on the coast. A few common crossbills were noticed in a small plantation here near the sea, and one killed by a boy with a stone; another, a fine old male bird, was shot on alighting in the Castle Holmes. Birds, on the whole, though, have been scarcer here than usual this winter.—*Alwin S. Bell; Scarborough, March* 15, 1862.

Occurrence of the Manx Shearwater, Thickknee and Crossbills in the Neighbourhood of Huddersfield.—In the month of September last a fine male specimen of the Manx shearwater (*Puffinus Anglorum*) was taken by a boy in a mill-dam, where it had been seen for many weeks; the dam abounded with gold fish. On January 17th a very fine specimen of the thickknee (*Œdicnemus crepitans*) was caught at Toothill, in an exhausted state: it has been preserved by Mr. Williamson. In December last the gamekeeper of Mr. Taylor, Almondbury, shot fourteen crossbills (*Loxia curvirostra*) on Storthes Hall Moor, all in a fine state of plumage: these have been preserved by Mr. Mozley.—*James Varley; Almondbury Bank, Huddersfield, March* 15, 1862.

Birds of Paradise at the Zoological Gardens.—One of the most beautiful and interesting additions to the menagerie of the Zoological Society has just been made, by the safe arrival in the Regent's Park of two living birds of paradise (*Paradisea papuana*). The restricted habitat of these birds, and the dangers and difficulties attending an exploration of their haunts in the unhealthy climate of New Guinea, have hitherto rendered almost hopeless any attempt to procure living specimens of these lovely birds. There are but few instances known of birds of paradise having been kept in confinement, and it is believed that the bird which died at Windsor about forty years ago, in the possession of the late Princess Augusta, is the only example which had been seen alive in Europe prior to the present arrival. Mr. A. R. Wallace, the indefatigable traveller and explorer of some of the rarely visited islands of the Indian Archipelago, has for some time been commissioned by the Zoological Society to fill up this gap in their collection; but all his endeavours failed to preserve alive some specimens he obtained. By chance, however, and after he had left the neighbourhood of New Guinea, he fell in with two of the much-desired birds, which had been a short time in confinement, and these, under his continued care and attention, were safely landed in England on Tuesday last. The birds are both males. They appear to have suffered little from their long journey, and, excepting that their plumes are apparently but half grown, their condition is as perfect as could be desired. Fortunately they are exceedingly tame, taking food readily from the hand, and displaying their beautiful plumage without showing any signs of fear. A dried skin of one of their brethren was immediately recognised, although at some little distance, and called forth loud and frequent caws, proclaiming their relationship to the Corvidæ, with which family ornithologists have associated them, and leading naturalists to hope that, like their congeners, they may prove hardy and long-lived in captivity. Their manners and customs will form an interesting study.—*E. W. H. Holdsworth.*

Tenacity of Life in an Iguana. — From a letter lately received by me from my brother Gordon, who writes from Quamby, Tasmania, I make the following extract, which I venture to hope may prove beneficial not only to generations of iguanas yet unborn, but also to such of their captors who may not be too proud to avail themselves of a useful hint: — "I have lately procured for you a very fine specimen of an iguana, of whose precise species, however, I am somewhat in doubt. I intended to skin him for you, but was prevented by a very formidable difficulty, *viz.*, I could not kill him! It is wonderful what an immense amount of vitality these creatures possess. He was brought to me struggling violently, with a string drawn round his neck: not dead indeed, but still a very interesting example of suspended animation. I put him into a box, when he became exceedingly savage, hissing and darting at me whenever I opened his prison. First of all I tried to kill him with chloroform, pouring what appeared to be half a dozen times more than sufficient upon a piece of wadding within the box, and then tightly closing the lid. On looking at him some time afterwards, I found that this had not taken the slightest effect, although the fumes were even then quite enough for me. So far from being in the smallest degree stupified, he darted about as actively as before, hissing furiously, with his tongue playing about like lightning. Well! I teased the poor reptile for a while, and then, as he evidently wished to bite somebody or something, I eased his mind by giving him the feather end of a quill pen: he instantly snapped at it, and when I paid him a visit next morning he still held it so firmly in his jaws that I lifted him up by it. What his jaws and his temper were made of I can't say; nor, by the way, do I know whether the bite is harmless; probably it is, but one does not like to try. Finding that he rather liked chloroform than otherwise, I next got a large tub of water, shut the ignana in a box with the lid partially propped open, and placed this at the bottom of the tub, with a few bricks piled upon the lid to keep all fast. And then I thought

I'd got him: but not a bit of it! Drowning seemed to be quite a joke; so after keeping him under water for *three hours and a half*, and finding that it only had the effect of making him rather drowsy, I took him out again, and in two minutes afterwards he was as lively and as fierce as ever. One would suppose that these strange creatures were partially aquatic in their mode of living; and yet it appears that they are always found in hot, dusty places. I have only seen two or three since my arrival, and they were lying in the thick dust of the road. As to the individual in question, as a last resource I jammed him (poor fellow!) head foremost into a pickle-bottle, and filled it up with strong whiskey; so that, however inhuman the proceeding may appear, I have nevertheless the satisfaction of knowing that he died in the best of spirits." A somewhat similar attempt to drown an iguana is related by Mr. Darwin; but this one, if I remember rightly, was a South American species of well-known aquatic habits.—*Henry L. Saxby; 54, Gilmore Place, Edinburgh, March* 3.

A Living Frog found in Coal.—The following is an extract from a letter received on Wednesday last in this city, by Mr. John Russell, from the manager of his Tyr Nicholas Colliery, Cwm Tylery, near Newport:—"Our men in the heading in the rock-vein coal yesterday (March 10), in a fall of coal in the face of the heading, found, in a hole in the pricking, in the top of the coal and in the nine-inch bed of coal, a live frog. The hole was not more 3½ inches in diameter, and this found in the soft holing. There is a slight hollow over the coal where it was found. It began moving about as soon as it was released, but seems larger and more lively to-day. It is kept shut up in clay to exclude the air from it. Now this is two hundred yards below the surface where this little thing was found, and I do not suppose any one can form an idea how long it must have been there. I intend having it kept for you when you return."—(Signed), L. W. Rees. [Mr. Russell is going to send to the Great Exhibition a block of coal between seven and eight feet long, selecting the piece in which the frog was found, the *locus in quo* being exactly in the centre, and the block will be so cut that the frog and its strange domicile will be clearly shown in front.]—*Worcestershire Chronicle.*

Life-sustaining Power of the Toad.—On the 17th of this month, while engaged in superintending the delivery of a cargo of coals, on board the 'Vulture' screw steamer, from Newcastle, I was surprised at witnessing in one of the baskets a large toad, to all appearance dead: this occurred when about 150 tons of the cargo had been weighed, so that the pressure upon the animal in the hold of the ship must have been immense. It was of course very much compressed; but on placing it down by my side, my astonishment was increased, after a few minutes, when, after the gradual inflation of the lungs, the animal made a slight spring forward, and ultimately became as lively as though nothing had occurred prejudicial to its existence. I inquired of the mate of the vessel whether there was a probability of any one on board having thrown it into the hold, and he assured me that it must have been brought with the coals out of the pit.—*H. Davey; 1½, Bridge Street East, Mile End, March* 20, 1862.

Incubation of the Python.—The eggs of the python have proved to be bad. Dr. Gunther has examined some of them, and thinks they were impregnated, but they were in such a state of decomposition *inside* that it is difficult to say positively. After six weeks' incubation the snake came off her eggs to change her skin; she was away from them the whole night. Under these circumstances the experiment is incomplete, but as there was an increase of temperature in the snake of at least 9°

during the whole time she was on the eggs (and at one time as much as 20°), I think there can be no doubt of its being developed for hatching purposes.—*E. W. H. Holdsworth.*

Capture of Tæniocampa leucographa at Lindfield.—I captured two specimens of Tæniocampa leucographa on the sallows, about a fortnight ago, in company with other Tæniocampæ, but have not been successful in meeting with more.—*George Stedman; Lindfield, Sussex, April* 7, 1862.

Pupæ are occasionally killed by Floods.—In the last number of the 'Zoologist' the Rev. E. Horton asks whether "pupæ are killed by floods?" There can, I think, be no question that they are so occasionally; that they are not, however, destroyed in this way so frequently as, at first sight, might appear probable, long experience has convinced me: led by a wonderful and almost unerring instinct, the larvæ rarely descend below the water-mark. I speak now of those which form their cocoons beneath the moss or under the bark of trees bordering on streams, rivers, &c. Through my parish runs a brook, each side of which is fringed with alder, poplar, ash, &c.: one day's heavy rain is quite sufficient to swell this brook beyond its usual bed, and consequently the lower part of the trunks of the trees is frequently submerged. When this is the case a clear water-mark is left on the trees. This is a very bad locality indeed for pupa-digging, but two rare insects, Cirrædia Xerampelina and Eupithecia innotata, both of which are ash-feeders, occur here, and accordingly I am diligent in my search for the pupæ: it is, I think, both a curious and an interesting fact that, in no single instance, have I ever found one below the water-mark alluded to. It appears to me evident that instinct warns them of their probable fate should they extend their journey too far. It may here be objected that this theory can scarcely apply to those insects which turn to pupæ at the roots of, or under the earth about, such trees. The objection is a plausible one, but twelve years' experience has taught me that pupæ will rarely be found at the roots of trees bordering streams which are ordinarily liable to overflow their banks: the larvæ, in this case, would seem to travel away from the trees, and enter the pupa state elsewhere. Perhaps some observant pupa-digger may be able to corroborate this statement. There will of course be seasons, as at present, when the floods are so unusually high as to baffle the caterpillar instinct, and a height or a place which, in ordinary years, would be quite safe, will then be submerged. In this case I have no doubt whatever that the pupæ are destroyed. Mr. Horton considers that this question may have some bearing on the disputed point as to whether pupæ in confinement should, or should not, be damped. I agree with him. At least it suggests the enquiry. In former years, as Mr. Horton rightly observes, I felt doubtful on the subject, but later experience has convinced me that, on the whole, it is better *not* to damp them. On the supposition that, in their natural state, pupæ require and have moisture, some collectors have felt themselves bound to try and supply it, and, in doing so, have experienced much difficulty in applying it in such a way as, on the one hand, not to give too little, or, on the other, too much. I am, however, most decidedly of opinion that this supposition is incorrect, and is not warranted by facts. In saying this I trust I shall not be thought to speak arrogantly or dogmatically. There is one fact, which every skilled pupa digger must have observed, *viz.* that in the vast majority of cases pupæ are found on the northern or eastern sides of trees, *i. e.* the sides least exposed to rain.

Moreover, so far from the larvæ choosing damp or moist places, the reverse is the case, as every pupa-digger knows. I am so satisfied now on these points that I rarely trouble myself to examine the moss, or dig, except on those sides or in dry places. From these well-known facts I infer, nay conclude, that pupæ in a state of nature do not necessarily require moisture, or at any rate very little. I therefore do not damp them, and am relieved from the difficulties which, more or less, stand in the way of those who do. I acknowledge that some dry up. The best way, in my judgment, to obviate this aggravating result is to keep them in a cool room, and if there be a current of air passing through the room so much the better. I may just add here, that many pupæ dry up through having been injured when dug up, or taken from bark, moss, &c. The slightest touch, especially when recently turned, is sufficient to kill them. In reference to Mr. Horton's second question, "Is the growth of the wings of an insect fresh from the pupa affected by the temperature?" I should say that there can be no manner of doubt about it. It may be proved in the simplest way. Take two perfect insects just emerged, say H. progemmaria. Leave one in a cold room, and bring the other down and place it on the chimney-piece in a room where there is a fire. I did this the other day. The one in the warm room expanded its wings in a quarter of an hour, while that in the cold required five hours to complete the operation.—*J. Greene ; Cubley Rectory, Doveridge, Derby.*

On the Plan upon which Bees and Wasps construct their Cells.

By Edwin Brown, Esq.*

It has until lately been the universally received opinion that the hive-bee makes hexagonal cells, owing to an instinctive preference for that form above all others. Many profound calculations have been made, by Lord Brougham and others, to prove that intelligence or instinct has enabled the bee practically to solve the problem of the exact angle which ensures the greatest amount of internal space, co-existently with the smallest possible expenditure of wax.

I am prepared to admit that it is the desire of the bee to produce a commodious cell by an economical outlay of wax; but that the intent of the bee is instinctively to make a cell with exactly six sides, is an hypothesis the truth of which I cannot concede.

Bees, wasps, ichneumons, spiders and all other insects which construct nests, cocoons or cells, whether of paper, wax or silk, attempt in these structures to produce hollow cylinders having hemispherical terminations; and it is only, I believe, when a number of apartments are placed side by side that the hexagonal shape is arrived at. It is not difficult to see the reason for this. The hexagon is the only polygonal form into which an area can be uniformly divided; and it is precisely that shape into which a series of cylinders, composed of any plastic material, would be forced on being subjected to uniform external pressure. In the basaltic columns of the Giant's Causeway, and of other places, we have the reverse operation of contraction; and notwithstanding the many disturbing influences during the cooling down of the once incandescent matter, the perpendicular fissures have separated the basaltic mass into columns, whose sections are mostly hexagonal.

---

* Read before a Meeting of the Midland Scientific Association, April 2.

It is a striking and an important fact that no instance has ever been brought forward of a bee of any species making a *detached* or isolated polygonal cell. Whenever wild bees make single cells they are invariably of the cylindrical shape. Hive-bees produce their ordinary comb-cells by the united efforts of many individuals. Owing to this circumstance, and also to their never building up cells at the margins of the combs unflanked by the foundations of other cells, they afford us, when so employed, no opportunity for observing the fundamental scheme upon which they build. Every cell during its progress is impinged upon by six other cells, and, as all progress at the same time, the united attempts of the workers to avoid interspaces, and to expend no more wax than is necessary to the making of firm walls, produce inevitably the hexagonal structure. The royal cells, or cells containing larvæ destined to become queens, are constructed upon the ordinary comb, and at right angles to the other cells. These cells are unconnected with each other, and it is an important fact that they are always cylindrical in shape: but the fact upon which I mainly found my disbelief in the hexagonal type is, that under exceptional circumstances, and where the hexagonal is not the shape that results from a compressed cylinder, *other shapes* are assumed. In the specimens which I now lay before you, examples are to be seen of pentagonal and also of heptagonal cells. This departure from the ordinary type has undoubtedly arisen either from the combs having been founded upon irregular base-lines, or, as in some cases, from the interspersing of large drone-cells among the series of the smaller cells which are destined for workers, and the consequent derangement of what may be called the ground-plan. These examples prove to my mind that bees, so far from aiming at producing a certain number of angles, attempt merely to form cylindrical cells, commodious as to size, and with as little expenditure of wax as possible; and whenever any particular cell impinges upon five, six or seven other cells, the thickness of the intervening wax being kept down to a minimum, the result is a cell with just so many corresponding sides, and this without any controlling choice on the part of the constructing bees. In one of the pieces of comb submitted to you, there may be observed a large seven-sided cell founded upon the flooring of two pentagonal cells; but as in the course of construction it was found to be too large singly for one grub, and divided it would have been too small for two, it has been abandoned unfinished.

Much, in like manner, has been said and written upon the angles produced by the contact of the bottoms of the two series of cells in each comb; but it will be seen, on examination, that these angles vary greatly according to circumstances; and the peculiar result might safely be predicated on the conjoint action of a large number of individuals working on opposite sides of the comb, and each labouring to produce a form as nearly hemispherical as possible, and with the smallest possible consumption of wax. There is really no greater difficulty in the way of explaining the peculiar shape of the bottoms of the cells, upon simple mechanical principles, than there is in accounting for that of the sides; and it seems to me little less than marvellous how any naturalist can carefully have examined the contents of a hive, cell by cell, without arriving at what I believe to be the correct conclusion, *viz.*, that the primary idea of the hive-bee is to produce a cylindrical cell with a hemispherical base.

At the meeting of the British Association in 1858, Messrs. Lubbock, Tegetmeier and Darwin, in face of numerous opponents, advocated the cylindrical type as that used by hive-bees; but Mr. Lubbock at the same time stated it to be his belief that wasps make hexagonal cells by choice. Mr. Frederick Smith, one of the best authorities in this or any other country upon Hymenoptera, also maintains that wasps work on an hexagonal plan. Certainly either Mr. Smith has been unlucky in the examples selected for examination, or I have been so; for I have never examined a nest of either wasp or hornet without finding abundant evidence that it is only when another line of cells is in process of erection that the cells in the outer ring assume a hexagonal shape. I beg to direct your attention to the exterior rows in the specimens of combs now on the table. You will observe that where the lines have not been laid down for new cells, the outer ring consists of cells whose sections would represent internally three straight sides, and semicircles exteriorly.

Were it not that the admitted instincts of bees and wasps are sufficiently wonderful in their various manifestations, I should feel something like compunction in attempting to disprove the supposed mathematical powers of these admirable little creatures; but "truth before all things" should be the maxim of the naturalist.

EDWIN BROWN.

Life-Histories of Sawflies. Translated from the Dutch of M. SNELLEN VAN VOLLENHOVEN, by J. W. MAY, Esq.

(Continued from p. 7857.)

CIMBEX BETULETI, *Klug.*

Imago. *Hartig, Blatt-und Holzwespen*, p. 70, No. 4.

Larva. *V. Voll. in Tijdschr. voor Nat. Gesch. en Physiol.* 1843, 10th Vol. p. 97, under the name of C. Lucorum. *Westwood, in Gardener's Chronicle*, 1852, p. 68, b and c; also under the name of C. Lucorum.

Cimbex nigra subnitida, rufo-griseoque villosa, antennis nigris, tibiarum apice, tarsisque luteis.

In the year 1843 I published a small contribution to the history of the Hymenoptera, in the journal of Professors J. van der Hoeven and W. H. de Vriese, under the title, "On the Larva of Cimbex Lucorum," in which the same insect was described as I am now about to treat of in this paper. It is certainly somewhat singular that Westwood should also have described this same insect under the name of Lucorum: we may conclude from this how very nearly allied the two species are. I shall refer in the sequel to the specific distinctions between the perfect insects, from which it will be seen that the difference is indeed small. This change of names appears to have arisen from the fact that neither Westwood nor I had sufficient confidence in DeGeer, who, in the second volume of his 'Mémoires' (page 232 of the German translation), describes Cimbex Lucorum, although, it is true, under the name of C. Amerinæ, yet so accurately and clearly that every hymenopterist cannot fail to recognize in his description the perfect insect of C. Lucorum. It will be shown from later investigations, and especially the re-discovery of the larva of this last species, which according to DeGeer lives on willows, that this author was not mistaken in referring the larva to the perfect insect, but only in his determination after Linneus, who was not acquainted with C. Betuleti.

The larvæ of the larger species of Cimbex appear to resemble each other very closely; so that the life-history of C. variabilis given by Rösel, Frisch, Hartig, Ratzeburg, Lyonet, and perhaps other authors, is far from being in a satisfactory state of clearness. It appears to me that these authors have made their observations on more than one species, and I should be much pleased if I could be enabled to reinvestigate this matter, for which purpose I shall be happy to receive contributions of larvæ. As Westwood informs us, the egg is laid in a slit made by the female with her saw in the soft shoots of the hawthorn; this must take place in May. The larvæ are always of a greenish white colour; in point of fact the skin is green, but covered as it were with a white powdery dust (see figs. 1, 2 and 3). Until the last moult but one the crown of the head is black, generally covered with a white exudation from the body; the remainder of the head, from the top of the clypeus downwards, is white. The eyes can be clearly seen inserted in oblong black spots, and below them the little white antennæ. After the last moult but one the head of the larva is bright yellow, with a pretty large brownish orange-coloured spot on the crown, and the spots in which the eyes are inserted have become more circular.

The larvæ are nearly four centimetres long. The six anterior legs are whitish green, very pale, with brown claws, the penultimate joint being broad and somewhat flattened. There are eight pairs of abdominal legs light green, without claws or hooks; making twenty-two legs in all. A darker green stripe runs along the back. On either side of the body are nine elliptical spiracles, and above each a small round orifice (fig. 6), this latter being the mouth of a duct from which this larva, the same as that of Abia ænea, discharges a colourless fluid on being touched. Westwood remarks that in the case of larvæ kept in confinement this discharge of fluid rapidly decreases, and at last ceases altogether. I imagine he must have fed his larvæ on too dry food, although I must at the same time admit that some individual swere rather apathetic as to touching and handling. If the larva is touched too roughly it immediately lets itself fall to the ground. They live until the end of July, feeding upon the leaves of the common hawthorn or whitethorn; during the day they keep concealed among the foliage, and it is only on the approach of evening twilight that they creep out to feed. My larvæ always made cocoons at the end of July or the beginning of August; these they fastened to the twigs of hawthorn or between the leaves, sometimes in the corners and on the bottom of their cage. These cocoons were hard and firm, similar to those of C. variabilis, but very different from those of C. Americanæ, which are reticulated. The best-fed and earliest-matured larvæ spin brown cocoons (fig. 7); those which are weaker, and later in attaining their full growth, spin yellow cocoons.

If the cocoons are cut open in March of the following year, the insect is found to be still in the larval state, although having undergone some change. It appears to be about half its former size, and is of a dull yellowish green colour; the head is still yellow, but the crown has become brown in place of orange. The trophi are piceous; below the mouth are seen the six thoracic legs lying close together; the abdominal legs, on the other hand, appear merely as wrinkles (see fig. 8). A short time afterwards, even in the course of the same month, pupæ are to be found in the cocoons; these are shining, dull green, with darker, blackish wing-sheaths; all the external parts are readily seen, and the antennæ, legs and wings distinct from the body, being merely covered with a thin transparent skin; the fluid which is beneath this skin gives a glassy appearance to all the parts; the abdomen is somewhat darker in colour; on the under side the saw of the female can be distinguished.

The imago made its appearance with me at the end of March, having been kept in a moderately warmed room; but I doubt if it is to be met with as early in the natural state. With its great jaws it bit a round piece out of the cocoon in about an hour (a gnawing sound was audible during this operation). When it emerged from its prison the wings were completely unfolded and nearly hardened. Other imagos were produced in the last days of the same month.

The perfect insects are 16 to 18 mm. long, their utmost expansion being 38 mm. They are sluggish animals, requiring the warmth of the sun to induce them either to run or fly. I do not know whether they take any food; I presume they do, as they appear to exist in the perfect state for a month or even six weeks.

The general colour of these sawflies is black; the head is broader in the male than in the female; in both sexes it is black, and clothed with black pubescence on the crown, that on the face and neck being ferruginous. In the male the mandibles are very long and acutely dentate, the eyes large and elliptical, the ocelli disposed in the form of a right-angled triangle on the crown. The antennæ are clavate and entirely black. Westwood states, in the 'Gardener's Chronicle,' and other English authors assert the same, that the antennæ contain eight joints, of which the first two are very short and thick, the third long and narrow, the fourth and fifth shorter and of equal length, the last three forming an ovoid club. I cannot help thinking that the antennæ are thus described in order to make this insect fit into Leach's division of Trichiosoma, one of the six sub-genera into which this author, without any necessity, divides the genus Cimbex of Olivier. These sub-genera are founded on differences in the antennæ, the labrum, and the femora; but the characteristics are so uncertain, one form passing into the other, that it is better to abandon these divisions. A proof of this is to be found in the antennæ of our insect, these organs having very distinctly but seven joints, and the fifth joint belonging in some measure to the club; the seventh and eighth joints of Westwood are one joint, there not being even a trace of suture to be seen.

The thorax is shining black, with dense ferruginous pubescence. The legs are black to the ends of the tibiæ, thence reddish yellow. Coxæ and femora clothed with long velvety hairs; in the male the femora of the intermediate and hind pair are spined. The wings have a yellowish tint, which is darker towards the costal nervure; they are black at their insertion; the post-costal, externo-medial and anal nervures are yellow; stigma brownish black; on the outer edge are some smoke-coloured nugæ, which are darker in some individuals than in others. The abdomen is black, in the male elliptical or cylindric, in the female broader and flatter, having in both sexes a ferruginous pubescence at the base and under side, and a gray pubescence on the top (fig. 10).

The saw and ovipositor (represented in profile at fig. 13) have precisely the same general appearance as in the very nearly allied species, C. variabilis, the largest of our indigenous species, only there is a difference in the shape of the projections on the edge, which are not mushroom-shaped, but depressed leaf-shaped protuberances, represented very highly magnified at fig. 14. The difference between this species and C. Lucorum is but small; the latter is somewhat larger and a bolder insect; and, moreover, in C. Lucorum all the tibiæ are red, and only the knee or upper extremity brown. Supposing De Geer's description of the larva to be correct, and not to belong to any other species, then the larva of C. Lucorum has no spot on the crown of the head. I hope to be fortunate enough to meet with this larva in our own country; I imagine it lives on the birch.

C. Betuleti is not rare in this country: the larva has been more than once sent to me in some numbers from Utrecht, by Dr. Verloren. I have myself taken it near Leyden. Mr. Dozy met with it at Breda.

Proceedings of Societies.

ENTOMOLOGICAL SOCIETY.

April 7, 1862.—F. SMITH, Esq., President, in the chair.

Donations, &c.

The following donations were announced, and thanks ordered to be given to the donors :—'The Transactions of the Linnean Society of London,' Vol. xxiii. Part 2; presented by the Society. 'Kongliga Svenska Fregatten Eugenies Resa omking Jorden under befäl af C. A. Virgin aren 1851—1853, Insekter,' Parts 4 and 5; by the Kongl. Svenska Akademien i Stockholm. 'Notes on the Generative Organs, and on the Formation of the Egg in the Annulosa,' by John Lubbock, Esq., F.R.S.; by the Author. 'The Journal of the Royal Agricultural Society of England,' Vol. xxii. Part 2; by the Society. 'Exotic Butterflies,' Part 42; by W. W. Saunders, Esq., F.R.S., &c. 'Sitzungsberichte der Königl. bayer. Akademie der Wissenschaften zu München,' 1861, ii. Heft 2; by the Academy. 'The Canadian Naturalist and Geologist,' Vol. vii. No. 1; by the Natural History Society of Montreal. 'The Zoologist' for April; by the Editor. 'The Proceedings of the Royal Society,' Vol. xi. No. 48; by the Society. 'The Intellectual Observer,' No. 3; by the publishers, Messrs. Groombridge & Sons. 'Catalogus Coleopterorum Europæ auctore H. Schaum, Editio secunda aucta et emendata;' by the Author. 'The Athenæum' for March; by the Editor. 'The Literary Gazette' for March; by the Editor. 'The London Review' for March; by the Editor. 'The Journal of the Society of Arts' for March; by the Society. 'Stettiner Entomologische Zeitung.' 1862, Nos. 1—3; by the Society 'A List of British Hemiptera (Heteroptera), with Allied Species found in Northern and Central Europe which may be expected to occur in Britain,' by J. W. Douglas and John Scott; by the Authors. 'List of the Specimens of Lepidopterous Insects in the Collection of the British Museum,' by Francis Walker, F.L.S., Part XXIV., Geometrites (continued); by the Author. 'Naturhistorisk Tidsskrift stiftet af Henrik Kroyer udgivet af Prof. J. C. Shiroate;' by the Editor.

The following addition to the Library, by purchase, was also announced :—'Rhopalocera Africæ Australis; a Catalogue of South African Butterflies, comprising Descriptions of all the known Species, with Notices of their Larvæ, Pupæ, Localities, Habits, Seasons of Appearance, and Geographical Distribution,' by Roland Trimen, M.E.S.L., Part I., Papilionidæ, Pieridæ, Danaidæ, Acræidæ and Nymphalidæ.

Certificates in favour of W. H. L. Walcott, Esq., of 11, Vyvyan Terrace, Clifton, Bristol, and David Sharp, Esq., of 14, Newcastle Street, Strand, as Members of the Society, were read a first time, and ordered to be suspended in the Meeting Room. Certificates in favour of George Robert Gray, Esq., the Rev. T. H. Browne, and Alfred Haward, Esq., were read a second time.

Exhibitions.

Mr. Stevens exhibited a box of Coleoptera and Lepidoptera from the Cape of Good Hope, and a specimen of Bryaxis Lefebvrei taken some years ago in the North of England, probably in Cumberland.

σ

Pseudogynous Specimen of Liparis dispar.

Mr. Stainton, on behalf of Mr. Newman, exhibited a pseudogynous specimen of Liparis dispar, and read the following notes thereon by Mr. Newman:—

"At page cxl. of the Appendix to the 'Zoologist' for 1851 I have attempted to differentiate four classes of phenomena usually comprehended and confounded under the word 'hermaphrodite:' one of these phenomena I have called Pseudogynism, that is, falsely or imperfectly female. At that time I believed, and still believe, the phenomenon of pseudogynism chiefly confined to endosteate animals, and especially to the ox tribe, in which they are familiarly known as free martins. I have now the pleasure of submitting to your notice a pseudogynous specimen of Liparis dispar, being the first instance I have seen of pseudogynism among insects, or indeed among exosteate animals. The sexual characters are most singularly blended; the antennæ are those of a male; the outline of the wings is exactly as in a female; the spotted cilia, so conspicuous in the fore wings, is a female character; the termination of the abdomen is female, and the sexual organs are so completely female that the specimen now exhibited has been united for three hours with a male of the same species; but, although it lived for three days after the intercourse had taken place, no eggs were laid, and the abdomen is hollow, never having contained eggs. I am indebted to Mr. Parke, of Stanway Old Hall, near Halifax, for the opportunity of exhibiting this singular and at present unique illustration of aberration from the usual order of Nature."

Dr. Wallace remarked that the circumstance of a female moth, in which no eggs had ever been developed, having nevertheless united in copulation with a male, was peculiarly interesting: he had frequently found that insects, whose appearance had been artificially forced by heat or otherwise, had their ovaries undeveloped; but in such cases he had never observed copulation to take place.

Orgyia Ericæ, &c.

Mr. Stainton exhibited a female of Orgyia Ericæ, a species not yet found in this country, though possibly it might be expected on heaths in the South of England, being not uncommon in the North of Germany and Belgium. He called attention to the shortness of the legs, and remarked that his attention had been attracted to the insect by a brief notice in the last volume of the 'Annales de la Société Entomologique Belge,' that this female did not quit the cocoon. It was well known that the female of Orgyia antiqua came out of its cocoon, and that the female of O. Ericæ should remain inside its cocoon seemed so extraordinary that he had been led to refer to what had been observed respecting other females of this genus, and rather to his surprise it had transpired that the non-exclusion from the cocoon of the female Orgyia was the rule. The earliest notice had appeared in the 'Annales de la Société Entomologique de France' in 1832, where Rambur had described O. rupestris, and had remarked that the female never came out of the cocoon, but had intercourse with the male through a hole at one end of the cocoon, and then deposited its eggs in the interior of the cocoon. In the 'Annales de la Société Entomologique de France,' in 1834, the Count de Saporta had made a similar observation with regard to O. trigotephros, and had described very graphically the result of the laying of eggs by the female, remarking that she seemed really to dissolve into eggs, for that after the eggs were all laid there was nothing of the female left, for her remains were so small as to be hardly perceptible. In the Stettin 'Entomologische Zeitung' for 1858 a German entomologist, of the name of Schmidt, had observed that none of his females of O. Ericæ emerged from the cocoon, but not expecting such a habit, and being unaware of any previous similar observations, he had allowed them to remain and to die in their cocoons without any opportunity of pairing with the males. Herr Schmidt had, with true caution, not ventured to announce this anomalous habit as an established fact, but possibly as an accidental occurrence, which, however, rendered further observations desirable. Dr. Breyer, of Brussels, had lately made further observations respecting the female of O. Ericæ. But the most extraordinary observation that had yet appeared was in the last number of the Stettin 'Entomologische Zeitung,' where there was an account of the habits of O. dubia (a species not uncommon in the South of Russia), by Herr Christoph. The female of that species never left the cocoon; but instead of the male copulating with it through a hole at the end of the cocoon, he went into the interior of the cocoon, and copulation took place there, after which the male came out of the cocoon in a very deplorable condition, and not exactly fitted for a cabinet specimen. Of the six European species of the genus Orgyia, of which the females were known, it thus appeared that in four, the female never left the cocoon, the only two in which the female emerged from the cocoon being O. antiqua and O. gonostigma.

Mr. Stainton remarked that he had not himself had opportunities of observing the habits of the female of O. gonostigma, but possibly some gentleman present might be able to speak as to its quitting the cocoon. Looking at the specimens exhibited of O. Ericæ, O. gonostigma and O. antiqua, it would appear that the development of the legs in O. gonostigma was intermediate between the other two species; and doubtless the habits of the species, in quitting or not quitting the cocoon, corresponded with the greater or less development of the legs.

Mr. Shepherd stated that he had seen the living female of O. gonostigma, and that it did leave the cocoon.

Note on Xenocerus semiluctuosus.

Mr. Pascoe exhibited Xenocerus semiluctuosus, one of the Anthribidæ from the Moluccas, and read the following note thereon:—

"I have brought for exhibition specimens of Xenocerus semiluctuosus, *Blanch.*, two males and a female. The female differs remarkably from both, but one of the males is in the normal condition; the other is an example of 'dimorphism;' it is, in fact, so very different as to be readily taken for a distinct species. The whole antenna is scarcely longer than the penultimate joint of the normal male, while that joint in the dimorphous male is the shortest, if we except the first and third; indeed, nearly all the joints vary in relative length to an extraordinary degree. The differences between the two forms are generally very striking, and I need not enlarge upon them. Although I have seen specimens with the antennæ shorter than in the normal, and longer than in the dimorphous male, yet, so far as I know, there is a wide interval between the two forms, which, however, it is not unlikely may be filled up. There are four other species of Xenocerus known to me, and in each of them this dimorphous form occurs. I have also noticed it in two species of the allied genus Mecocerus. That a modification in one or other of some organs occasionally takes place in insects, I have long been convinced. When drawing up the list of Longicornia for Sir E. Tennent's work on Ceylon, I was so satisfied that Olenecamptus serratus, *Chev.*, was a modified form of the common O. bilobus, *Fab.*, that I omitted it without hesitation; and I think it not improbable that many mimetic forms, especially among the Lepidoptera, are but cases of dimorphism, in some instances perhaps dependant on second broods. In another direction it shows that characters relied on as of the highest generic importance are in some cases not even of specific value."

A conversation on the subject of "dimorphism" ensued, in which Prof. Westwood, Mr. Waterhouse, Dr. Wallace, Rev. Hamlet Clark and Mr. Pascoe took part. Prof. Westwood recollected no instance of dimorphism in the antennæ, though instances of dimorphism in other parts, as *e.g.* the mandibles, had for some time been known; it was not uncommon in insects which possessed a remarkable development, in the male, of some particular organ (*e.g.* among the Lucanidæ, Onthophagi, &c.), to meet with specimens, in other respects of the male form, but which had that particular organ reduced to the female form. It had been suggested in Kirby and Spence that such specimens might be neuters; but Prof. Westwood regarded them rather as specimens whose full development had by some means or other been retarded and left incomplete.

Mr. Pascoe considered that there were many forms differing only in a single character from the characters of the male or female of well-established species, and that such were not entitled to rank as species or even sub-species, but were in fact only a third form.

Mr. Waterhouse thought that, in the division of insects to which reference had been made, it was the rule that three forms existed—the normal male and female, and the third intermediate, neuter or dimorphous, whatever its proper designation might be.

The President exhibited a monstrosity of Chrysomela Banksii, captured last season; it had the extremity of the right hind leg cleft into three distinct members, thus giving it very much the appearance of a bird's foot.

The President also, after referring to an exhibition made by him at the previous (March) Meeting of the Society, exhibited a living specimen of Endophlæus spinosulus, *Latr.* The insects, which had been captured by Mr. Turner in the New Forest, proved, on further examination, to be the true E. spinosulus.

Mr. Smith also exhibited what had been sent to him by Mr. Turner as the larva of Endophlæus, but which, in Prof. Westwood's opinion, was the larva of a Musca.

Mr. C. Fenn exhibited a specimen of Laphygma exigua, beaten from sallow-blossoms at Lewisham, on the 24th of March last.

Note on Varieties.

Mr. Fereday exhibited some specimens of the genus Tæniocampa, and read the following observations on "Varieties," suggested by the exhibited specimens:—

"At the Meeting of this Society held in August last year, two specimens of Lepidoptera were exhibited by me, which were pronounced by the more learned and experienced of the gentlemen then present to be varieties of Tæniocampa munda. Both specimens were taken near Croydon, the one (a male) on the 29th of March, and the other (a female) on the 6th of April last year. I did not feel at all satisfied of their being specimens of T. munda, and it was on that account they were exhibited. There seemed to me to be a peculiarity in their form, colour and general appearance, which I could not reconcile with any variety of T. munda known to me; and it is rather a singular circumstance, if they are truly T. munda, that I should have taken two insects of that species so much alike, and so widely differing from the ordinary type of T. munda, without meeting with one of the ordinary type or of any other description, although I visited the same locality very many nights in March and April.

"I have, however, been able to commence an investigation, which I hope may result in a satisfactory solution, of the ever-recurring question of distinct species and varieties of Lepidoptera,—a solution which seems to me of considerable importance, and to require but little trouble and attention to obtain; and I am surprised that amongst so many lepidopterists so little has been done towards promoting it. The received opinions on the subject are, I believe, grounded upon theory only, and have not been clearly proved to be correct; and it does appear to me that we ought not to accept as a fact anything which may be, but is not, established by direct and conclusive evidence.

"The female taken as before mentioned, on the 6th of April, 1861, produced a few eggs. The eight insects placed in a line below it I propose, for convenience, to call 'the specimens in question.' They are all the insects which I have been able to obtain from those eggs, and it will be observed that they are all, without any exception, as nearly as possible alike in colour, markings and general appearance, and only differ from the female parent in being a shade lighter and less red in colour. The larvæ were precisely similar to the larvæ of T. munda, so far as Dr. Knaggs and myself were able to judge by comparison with larvæ of the ordinary type of T. munda reared at the same time. Of the character of the male parent I am unfortunately ignorant, —whether it was an insect of the ordinary type of T. munda, or similar to the female, or otherwise,—the female having been already impregnated at the time she was captured.

"On the right of the specimens in question is a series of T. munda, the three top specimens having been bred (as I am informed by Dr. Knaggs, who has kindly lent them to me for comparison) from the eggs of a female of the ordinary type of T. munda, and it will be observed that they vary considerably in colour and markings.

"Messrs. Fenn have also lent me a long series of so-called 'varieties' of T. munda, collected by them from various sources.

"On the lid of the box are five specimens of T. instabilis, produced this year from the eggs of one female; and these also vary considerably.

"But of all these so-called 'varieties' there does not appear to be any evidence as to the male parents; and a question presents itself very strongly to my mind,—How are so-called 'varieties' produced, and have we any positive proof of their being the offspring of a male and female of one and the same species? I have not carried my experiments sufficiently far to enable me to furnish any decided proofs in answer to this question, and I am sorry that my departure to New Zealand will prevent my following up the experiments to any definite conclusion; but my friend Dr. Knaggs has kindly undertaken, although not holding similar views to mine upon the subject, to continue them, and is now feeding a quantity of larvæ produced from eggs which I have been fortunate enough to obtain from one of the specimens in question, after her copulation with her own brother. If these larvæ produce insects all alike, and similar in colour and markings to their parents and to the other specimens in question, I think it will afford a strong argument, in the absence of positive proof to the contrary, that what are called 'varieties' are in fact hybrids, the produce of the union of distinct species, and for the following reasons, *viz.*,—If the assumed fact, that from the union of a female of any particular species with a male of the same species a variety of that species may be obtained, is correct, how would the absence of variety in this instance be explained? The specimens in question are said to be a variety of T. munda, a species described as particularly variable; and yet here would be a case of two generations in which no variety was produced. If it is said that the tendency of a variety of a species may be to propagate an offspring bearing its own type of colour and markings, then how is a species to be distinguished from a variety? But it may happen that the larvæ in question, now in the course of being reared, may produce a variety of insects. In that case the fact of the existence of varieties will be proved by the result of actual experiment, instead of resting, as I apprehend it now does, upon theory only. To prove that so-called 'varieties' are varieties and not hybrids, I contend that it is not sufficient to prove their descent from a particular female, but there must be evidence of the male parent having been an insect of a precisely similar type to that of the female parent, because, if the male varied from the female, the very question upon which I raise an issue is again involved.

"I shall be glad to know if any one has actually obtained varieties of any species of Lepidoptera from an union, which they have been able to prove, between a male and female of one and the same species and type. I do hope that some of the gentlemen here present will try the experiment. My desire is to obtain actual and positive proof, the only ground upon which received facts in any science ought to stand.

"I make these observations with all due deference to the opinions of those who have more experience and knowledge than myself, and shall be only too happy to be corrected by them in any error I may have fallen into upon the subject.

"I should observe that the specimens in question are not in such good condition as bred specimens usually are, in consequence of their having been kept for some time in the cage for the purpose of obtaining eggs; and I may also observe that their larvæ were some of them fed upon sallow and some upon apricot, and that so far Mr. Gregson's statement, as to creating varieties of insects by feeding the larvæ on different kinds of plants, is not borne out."

Note on Argynnis Cybele and A. Aphrodite.

The Secretary read the following paper, by Mr. Walker, "On Argynnis Cybele and A. Aphrodite":—

"I have received from Mr. Edwards, of Newburgh, U.S.A., a form of Argynnis allied to Cybele and Aphrodite, which throughout this communication is spoken of as No. 1. I wish to lay before the Society an extract from a letter addressed to me by Mr. Edwards, which has some reference to the geographical distribution of species or of varieties. Mr. Edwards writes as follows:—

"'I have not a doubt of there being in this region three allied species of Argynnis. I have had before me a large number of Cybele, and of the No. 1, from many localities, and I have taken both myself in large numbers. The true Cybele is the common species of the Southern States and of New Jersey. In the vicinity of Newburgh, sixty miles north of New York, I find about as many of No. 1 as of Cybele. In the Catskill mountains, fifty miles north of Newburgh, I took during last summer only eight specimens of Cybele, while No. 1 was extremely abundant. From Connecticut and Massachusetts, from central New York and Canada West, all I have received have been No. 1. In a long series of both species the differences are constant and the distinctions plain. Cybele is larger, duller fulvous, and the fulvous is not uniform, being lighter towards the hind margin and darker next to the base. The under side of the hind wings of No. 1 is of a rich cinnamon-brown, and the space between the two outer rows of silver spots is always, so far as I have seen, encroached on by the cinnamon colour. In Cybele this space is unclouded and immaculate, and the basal colour is quite another shade of brown. The silvering of No. 1 is very decided on the costa and on the abdominal margin. Kirby's description of Aphrodite applies to No. 1. The figure in Westwood's 'British Butterflies' is that of No. 1, and so is the description. Gosse, in his 'Canadian Naturalist,' p. 229, 261, speaks of two species as common, and which he had at first confounded. I do not think that No. 2 is common in that part of Canada; I only took thirty specimens last summer, though I looked for it carefully. This was in the Catskill mountains, and the next locality from which we have it is among the Green mountains of Vermont, and then the White mountains of New Hampshire; so it seems to be a mountain species in this latitude.'

"A. Cybele is much more different from Aphrodite than the latter is from No. 1, and it seems to me that the three will be generally considered as forming only two species, though some entomologists will describe them as three species, and others will maintain that they are only three local varieties, and that No. 1 is the transition from Cybele to Aphrodite. All the specimens in the British Museum are Cybele and Aphrodite. I have placed No. 1 in the Museum for inspection; it was forwarded to me by letter, and is consequently much injured."

Mr. F. Moore exhibited a collection, contained in fourteen drawers, of Asiatic silk-producing moths, illustrated with specimens and figures of their several transformations, and samples of the various raw and manufactured silk. Mr. Moore also read a paper on those insects, in which he enumerated the whole of the Asiatic silk-producing moths known to him, with remarks on their habits, localities, cultivation, and the quality of the silk produced. He also gave the characters of a new genus (Caligula), and described a new species of Neoris (N. Huttoni, *Moore*).

Proposed Restoration of Obsolete Names.

The Secretary read a paper by Dr. H. Schaum, "On the Restoration of Obsolete Names in Entomology," in which the author assigned the reasons which induced him not to adopt the names of Stephens and Marsham for many Coleoptera which continental authors had not been able to identify, but which the researches of Mr. Waterhouse had shown to belong to species known on the Continent by names posterior in date to the English authors'. Dr. Schaum contended that the law of priority of nomenclature was applicable, or at all events that a once-current name was to be dropped and an older one restored, only when the publication of the earlier name was accompanied by such a description of the insect as would give another entomologist a reasonable probability, or at least some possibility, of recognizing the species from the description. A description which did not come up to this standard was no description at all, and names accompanied only by such nondescript descriptions were in fact mere catalogue names, not entitled to priority.

Mr. Waterhouse, Prof. Westwood, Mr. Stainton, the Rev. Hamlet Clark and the President combatted the views of Dr. Schaum, and argued in favour of the law of priority of nomenclature as now received in this country. It seemed to be considered that Dr. Schaum's views were good in theory, but bad in practice; that it was impossible to say where the line should be drawn between descriptions which did and those which did not entitle a name to priority; that what one entomologist would consider to be a good description, by another would be considered faulty and untrustworthy; that what in one age was a sufficient description became in a subsequent age insufficient, from the discovery of new species, and other reasons; that the consequence of a strict application of Dr. Schaum's rule would be the immediate abolition from our lists of all or most of the Linnean and Fabrician names; and lastly, that Dr. Schaum had in some degree shown the impracticability of his rule by himself not having acted up to it. In reference to some criticisms, contained in the paper on the descriptions in Stephens' works, and in Mr. Hope's paper on Coccinella in the 'Zoological Miscellany,' Prof. Westwood remarked that Dr. Schaum appeared to have forgotten that Stephens described his genera in two ways—*first*, a few words of description to each genus, pointing out the principal characters; *secondly*, a synoptical table of the genera in each family, wherein the most minute characters were noticed. As to Mr. Hope's descriptions, he might mention that the paper on Coccinella, as published, was a mere abstract of what Mr. Hope wrote; he knew it to be a fact that when the paper was written it was, for some reason or other, inconvenient to give it at length in the 'Zoological Miscellany,' and the elaborate descriptions of Mr. Hope were cut down to the meagre half-dozens of words which had incurred the censure of Dr. Schaum.

A new Part of the 'Transactions,' Vol. i., 3rd series, Part I., was on the table, ready for distribution among the members and subscribers.—*J. W. D.*

Note on a Species of Œstrus.—At the March meeting of the Northern Entomological Society, Mr. B. Cooke described a fly (taken by Mr. James Cooper, during the summer of 1854, in Perthshire), under the name of Œstrus biangulatus. At that time Mr. Bracy Clark said that this insect was parasitic on the reindeer. He had, however, lately been informed by Mr. Haliday that "It is stated in the 'Transactions' of the Zoological and Botanical Society of Vienna, 1858, pp. 385—414 and 449—470, in a paper by Brauer, giving much information on the natural history of the known European Œstridæ, and adding five new species to the sixteen known before, that the female of Cephenemyia is viviparous; C. Trompe is the species appropriated to the reindeer; C. pecta and C. rufibarbis to the red deer; C. stimulator, which I believe your specimen belongs to, probably to the roebuck, and that it is the parent of the faucal botts in this animal." Mr. Cooke said that if this is the fact the insect is indigenous to this country, and any collectors visiting Scotland should look out for specimens.

Sugar and Sallows.—As it may not be known to many that the "sugar-bait" can be advantageously used when the sallows are in or near their bloom, I send you the result of an experiment which quite exceeded my expectations. On the 3rd instant, finding that the sallows in my favourite locality were very backward, although others not far distant were in full flower, I adopted the expedient of "sugaring" the trees near at hand, which were soon crowded with hybernating Noctuæ and Orthosidæ. Whilst busy boxing Tæniocampa munda I was joined by my friend Mr. Birks, who had been unprofitably examining the sallows. We remained together, and during the evening took twenty-nine T. munda, besides other things. The following evening we took twenty-two of the same species in like manner. Other evenings have been nearly as productive. I think the above is worthy of notice, as in previous years, when only the sallows have been searched, the capture here of one or two T. munda was considered satisfactory for one evening. It would therefore seem to be worth while trying "sugar" for some of the rarer species of this family out at this season.—*R. Anderson; York, April* 17, 1862.

Errata in "Notes on the Entomology of the Isle of Man."—P. 7896, line 20 from top, for Holiman read Holmian; line 10 from bottom, for Nortto read North; line 6 from bottom, for pretty read petty. P. 7921, line 11 from bottom, for yeild read yield. P. 7922, line 6 from top, for emptying read untying.

Hymenoptera and Diptera.—I take the liberty of reiterating my earnest entreaty that entomologists will kindly capture and preserve what Hymenoptera and Diptera come in their way when in pursuit of the more popular and attractive Lepidoptera and Coleoptera. I have been occupied very frequently during the winter in arranging and naming my specimens, greatly assisted, as far as regards bees, &c., by Mr. Smith, of the British Museum; and I trust before long not to have a single specimen unnamed.—*Edward Newman.*

Young Badgers.—So little is known of the breeding habits of some of our native quadrupeds that a notice of the reproduction of the badger may be acceptable to the readers of the 'Zoologist.' On the 14th of last month, at the Zoological Gardens, Regent's Park, were born four little badgers. They were produced alive, but unfortunately shared the fate of so many animals born in captivity: they were all killed by the mother in the course of a day or two. Their average weight was just three ounces. The measurements of the largest of the litter were—Extreme length 7 inches; length of the head 1¾ inch; length of tail 1½; height at shoulder 2½ inches. These young animals were born blind, but well covered with short grayish white hair, the two dark facial stripes being faintly marked. The anterior limbs were very stout, larger and apparently better developed than the posterior. The head was not so much elongated proportionately as in the adult, and altogether there was a striking resemblance between these little badgers and the newly-born polar bears, except in size, the bears being nearly double the length of the badgers. The structural affinity between these animals would lead one to expect a close correspondence in their breeding habits, but such does not appear to be the case. The young badgers were not remarkably small, and the mother showed no loss of appetite either before or after littering, as has been observed in the black, brown and polar bears. The time of year at which the badger brings forth, although early, is more in accordance, than in the bear tribe, with our ideas of the general breeding season; but it must not be forgotten that captivity and its attendant annoyances often materially affect the reproductive habits of all wild creatures. The essential differences between the bears and badger in this respect cannot, however, be due to confinement, but must be considered as characteristic distinctions. In 1852 a badger was born in the Gardens so early as the 20th of February. I have not been able to ascertain the period of gestation.—*E. W. H. Holdsworth; 18, Osnaburgh Street, April* 10, 1862.

CONTENTS.

QUADRUPEDS.—The Apes at Gibraltar, *Rev. Alfred Charles Smith, M.A.*, 7985. Economic Uses of Canadian Suckling Animals among the Chipewyan Indians, 7989. The Wolf-Days of Ireland, *Jonathan Grub, Esq.*, 7996.

BIRDS.—Notes on Birds' Nests, *H. Blake-Knox, Esq.*, 7997. The Manner in which the Cuckoo deposits its Eggs, *Col. H. W. Newman*, 7998. Early Arrival of the Wheatear, *A. G. More, Esq., F.L.S.*, 7998. Habits of the Crested Titmouse, *H. L. Saxby, Esq.*, 7998. Unusual Number of the Pine Grosbeak occurring in Cambridgeshire, *S. P. Saville, Esq.*, 7999. Food of the Wren, *Henry Doubleday, Esq.*, 7999. Further Notes on the Common Wren; Notes on the Great Spotted Woodpecker, *S. P. Saville, Esq.*, 8000. Cuckoo depositing her Eggs, 8000. Note on Sabine's Snipe; Jack Snipe, *F. Bond, Esq.*, 8000. On the Change of Plumage in the Crossbills and Pine Grosbeak, 8001. Occurrence of the Wild Goose near Penzance, *Edward Hearle Rodd, Esq.*, 8002. White Specimens of Redthroated Diver and Lapwing, *R. H. T. Gilbert, Esq.*, 8002. Occurrence of the Little Gull in Kent, *W. Hammond, Esq.*, 8003. Puffins in Winter; Occurrence of the Crane at Hartlepool, *Edward Newman*, 8004, 8005. Occurrence of the Egyptian Goose at Alton, *P. Crowley, Esq.*, 8005. Occurrence of the Sclavonian Grebe at Halifax, *George H. Parke, Esq.*, 8005. Occurrence of the Blackthroated Diver near Scarborough, *Alwin S. Bell, Esq.*, 8005. Occurrence of the Manx Shearwater, Thicknee and Crossbills in the Neighbourhood of Huddersfield, *James Varley, Esq.*, 8005. Birds of Paradise at the Zoological Gardens, *E. W. H. Holdsworth, Esq.*, 8005.

REPTILES.—Tenacity of Life in an Iguana, *Henry L. Saxby, Esq.*, 8006. A Living Frog found in Coal, 8007. Life-sustaining Power of the Toad, *H. Davey*, 8007. Incubation of the Python, *E. W. H. Holdsworth, Esq.*, 8007.

INSECTS.—Capture of Tæniocampa leucographa at Lindfield, *G. Stedman, Esq.*, 8008. Pupæ are occasionally killed by Floods, *Rev. Joseph Greene, M.A.*, 8008. On the Plan upon which Bees and Wasps construct their Cells, *E. Brown, Esq.*, 8009. Life-Histories of Saw-flies, 8012. Note on a Species of Œstrus, 8023. Sugar and Sallows, *R. Anderson, Esq.*, 8023. Hymenoptera and Diptera, *E. Newman*, 8023.

PROCEEDINGS OF SOCIETIES.—Entomological Society, 8016.

QUADRUPEDS.—Young Badgers, *E W. H. Holdsworth, Esq.*, 8024.

TO CORRESPONDENTS.—The following communications unavoidably stand over:—H. Stevenson (2), Captain Hadfield (3), T. Goatley (2), A. G. More, C. R. Bree, Rev. Octavius Pickard-Cambridge, Rev. A. Matthews, Rev. J. Greene, H. Bartlett, and many others.

WILLIAM FARREN, 1, Rose Crescent, Cambridge, having purchased the very fine Collection of Lepidoptera formed by Mr. Rogers, of Rotherham, will be happy to send Priced Lists of the same upon application. An early application is solicited, as he intends clearing the whole off at a very low figure.

Fine bred Scotosia certaria (this year's), 1*s.* each.

W. F. intends working the fens this year, both for Lepidoptera and Coleoptera.

Printed by E. Newman, 9, Devonshire Street, Bishopsgate Street, N.E.